



Radiation Inspection Branch Environmental Monitoring Summary for 2011

February 2014

NOTE: Items within these environmental summaries have been removed due to confidential homeland security information under The Texas Public Information Act and House Bill 9, Gov. § code 418.

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Introduction

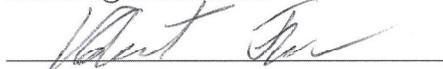
The document consists of the data collected for each monitoring point at each facility. The data are presented in the same manner as in the past. Limits of detection were not included with data in an effort to reduce the space required for data entry. A listing of expected limits of detection for various media, geometries, and radionuclides is found in the appendices. Maps of the facilities are included, but some details have been omitted. Specific information about individual facilities can be found in the license files. Redacted copies of this and previous annual reports can be found at <http://www.dshs.state.tx.us/radiation/publications.shtml>

All analyses of environmental media, i.e., soil, air, water, vegetation, and sewage are performed by the Texas Department of State Health Services (DSHS), Laboratory Services Section. The Laboratory Services Section operates a highly capable radio-chemistry program. Currently, the Environmental Sciences Branch participates in a program sponsored by the United States Department of Energy (USDOE), referred to as Department of Energy Laboratory Accreditation Program. It was developed by the USDOE in order to provide quality assurance and control for USDOE contractors. The most recent results of the Laboratory Services Section's performance in these "cross checks" can be found in the appendices to this document or on the internet at the following location (<http://www.eml.st.dhs.gov/qap/reports/>).

Landauer, Inc. performs Optically Stimulated Luminescence (OSL) readings for the facilities that have neutron sources. Approximately 200 OSLs are exchanged and read each calendar quarter. Background is subtracted from all station readings except for Comanche Peak Nuclear Power Plant, South Texas Project, and Pantex. Background is not subtracted from these three locations because the readings identify ambient doses.

Analysis of sample data from the monitored facilities indicated no release of radioactive material to the environment that exceeded the regulatory or license limits of the DSHS or any other agency such as the United States Nuclear Regulatory Commission or the USDOE. A catastrophic failure occurred at the Fukushima Daiichi Nuclear Power Plant on March 11, 2011. The failure occurred when the plant was hit by the tsunami triggered by the Tōhoku earthquake; the plant began releasing substantial amounts of radioactive materials beginning on March 12, 2011. Several environmental samples collected at fixed monitoring sites in Texas in the following weeks indicated trace levels of I-131 which is believed to be from the Fukushima release. The level of radiation observed in Texas from the release was not a public health concern. Some of the OSL readings at a few of the monitored facilities exceeded 100 mrem for the year. All licensed facilities are required by rule to document that exposures from conducting operations do not cause doses in excess of the regulatory limits to employees or individual members of the general public. The documentation is maintained for inspection by the Radiation Branch. Licensees are allowed to use mitigating factors, such as occupancy and distance to nearest occupied areas, in demonstrating compliance with those limits. Taking into account occupancy all facilities monitored during the 2011 calendar year were found to be in compliance with radiation dose limits.

Any questions should be directed to Robert E. Free at 512-834-6770, ext. 2022 or robert.free@dshs.state.tx.us.



Robert Free

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Fixed Nuclear Facilities

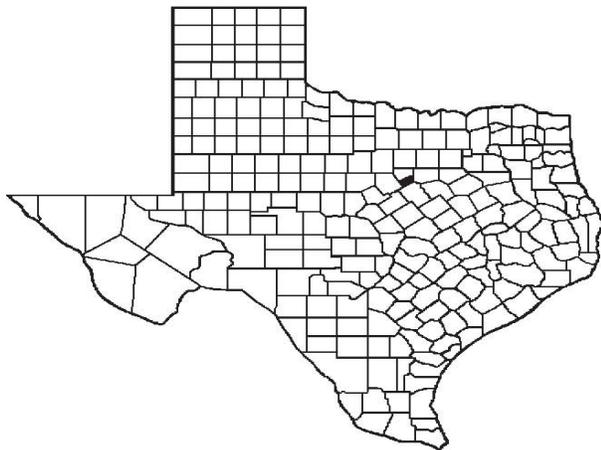
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Comanche Peak Nuclear Power Plant

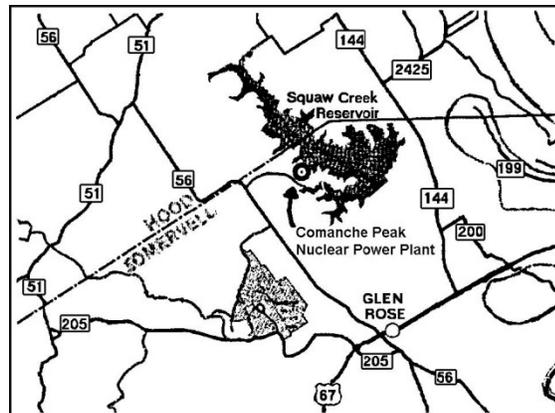
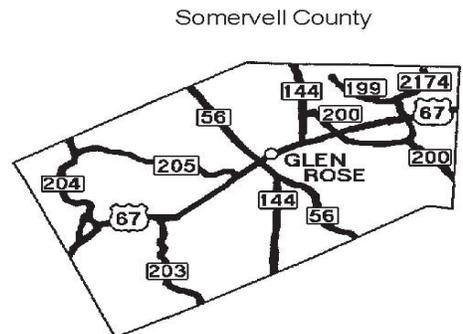
Radiation Branch Site No. 031

Comanche Peak Nuclear Power Plant (CPNPP) is a two-unit nuclear-fueled power plant owned and operated by Luminant Power. The plant is located in Somervell County four and one-half miles northwest of Glen Rose and approximately 80 miles southwest of downtown Dallas.

CPNPP, Luminant Power's sole nuclear power plant, with an operating capacity of 2,500 megawatts [two Westinghouse 1,250 megawatt (electric) pressurized water reactor units], began operation in 1990, although fuel had been received on-site in 1982-1983. The plant has approximately 1,300 employees. The Radiation Branch surveillance program consists of OSL monitoring and sampling air, fish, food products, sediment, vegetation, and water.

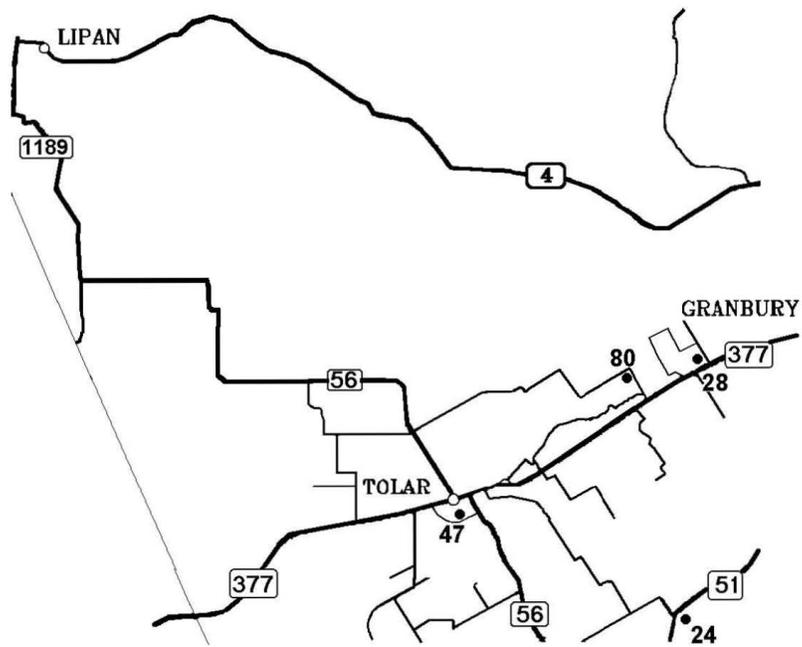
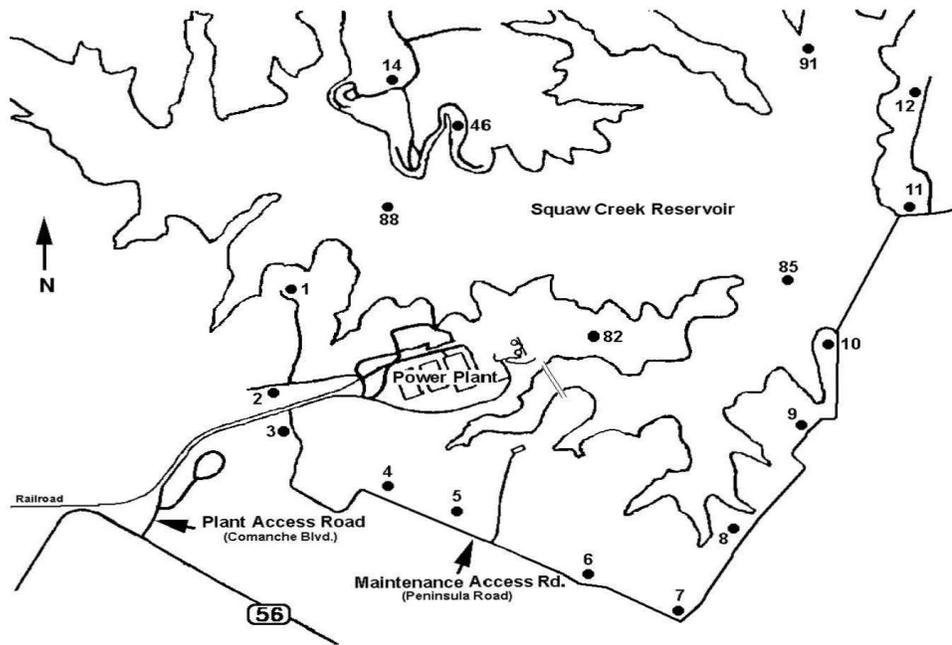


Shaded area indicates location of Somervell County

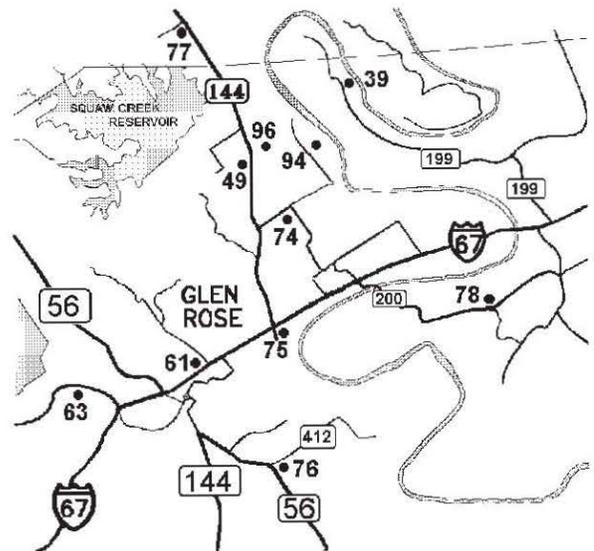
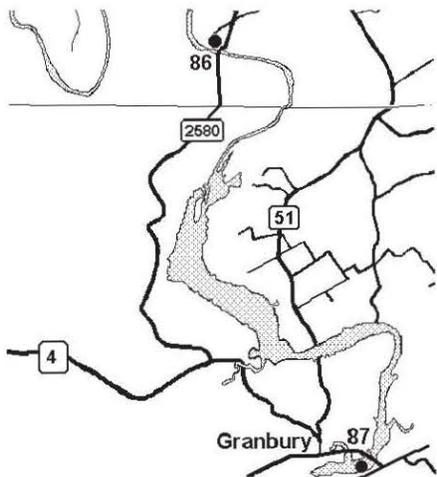
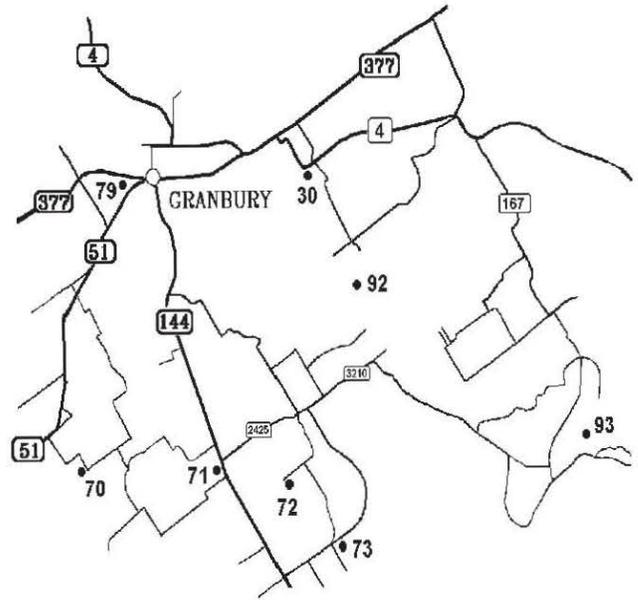
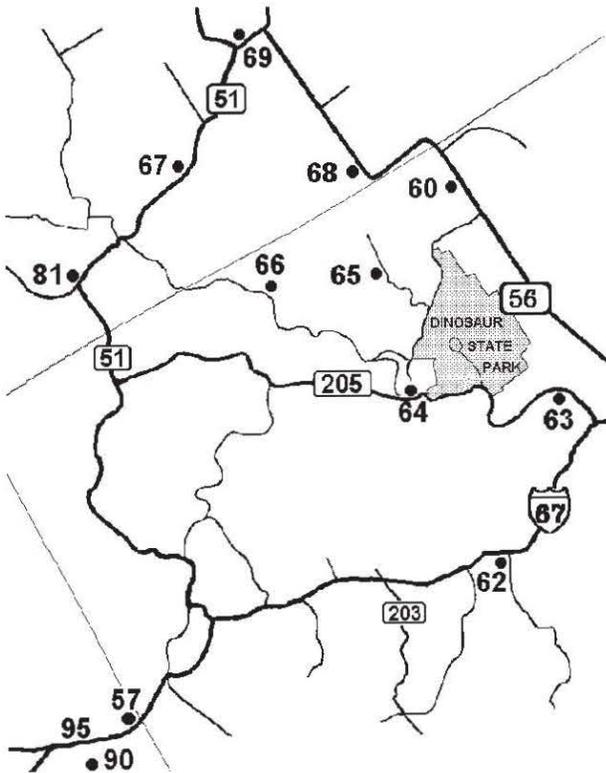


Comanche Peak Nuclear Power Plant Monitoring Station Locations

Note: Sample type not indicated on maps.



Comanche Peak Nuclear Power Plant
Monitoring Station Locations



Comanche Peak Nuclear Power Plant
Optically Stimulated Luminescence (OSL) Monitoring Results
¹(quarterly and annual readings are in mrem)

	Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
	1	15	16	12	14	57	
	2	16	17	12	15	60	
NOTE: ¹ Background is not	3	14	15	9	17	55	
subtracted from the data	4	16	16	13	13	58	
² If data are missing during a quarter,	5	15	16	11	17	59	
an average of known quarter readings	6	15	16	11	15	57	
for that year and location is used to fill	7	15	16	10	16	57	
in for the missing data	8	15	16	11	14	56	
	9	16	16	13	16	61	
	10	17	18	12	17	64	
	11	14	15	11	15	55	
	12	18	19	14	15	66	
	14	16	16	13	18	63	
	24	17	17	13	16	63	
	28	17	17	14	16	64	
	30	15	16	12	19	62	
	39	16	17	11	16	60	
	46	15	16	11	16	58	
	47	16	17	13	17	63	
	49	15	16	13	19	63	
	60	16	16	12	19	63	
	61	15	16	12	---	43	Q4 OSL Missing ²
	62	17	16	12	304	349	
	63	15	17	13	16	61	
	64	13	17	----	15	45	Q3 OSL Missing ²
	65	16	16	10	17	59	
	66	17	16	12	18	63	
	67	14	17	11	16	58	
	68	16	15	11	14	56	
	69	15	16	12	16	59	
	70	15	16	12	14	57	
	71	15	17	11	15	58	
	72	15	18	12	14	59	
	73	15	15	11	15	56	
	74	16	16	12	15	59	
	75	15	15	11	15	56	
	76	16	16	11	15	58	
	77	16	15	11	15	57	
	78	16	15	12	16	59	
	79	16	18	11	15	60	
	80	17	16	13	15	61	
	81	20	17	12	14	63	
	82	26	14	13	16	69	

**Comanche Peak Nuclear Power Plant
Environmental Sample Results**

Air Iodine pCi/m ³				Air Particulate pCi/m ³			
Date	Lab No	Station	I-131	Date	Lab No	Station	Beta
04-Jan-11	AB44155	001	<7e-15	04-Jan-11	AB44154	001	2.6e-14
04-Jan-11	AB44157	057	<5e-15	04-Jan-11	AB44156	057	2.6e-14
11-Jan-11	AB44732	001	<7e-15	11-Jan-11	AB44731	001	2.9e-14
11-Jan-11	AB44733	057	<5e-15	11-Jan-11	AB44734	057	3.1e-14
18-Jan-11	AB45119	001	<7e-15	18-Jan-11	AB45118	001	3.9e-14
18-Jan-11	AB45121	057	<5e-15	18-Jan-11	AB45120	057	4.0e-14
25-Jan-11	AB46099	057	<8e-15	25-Jan-11	AB46098	057	3.5e-14
25-Jan-11	AB46101	001	<6e-15	25-Jan-11	AB46100	001	3.4e-14
01-Feb-11	AB47028	001	<1.0e-4	01-Feb-11	AB47027	001	2.7e-14
01-Feb-11	AB47030	057	<7e-15	01-Feb-11	AB47029	057	2.9e-14
08-Feb-11	AB47610	001	<8e-15	08-Feb-11	AB47609	001	2.4e-14
08-Feb-11	AB47612	057	<5e-15	08-Feb-11	AB47611	057	1.6e-14
15-Feb-11	AB48041	001	<8e-15	15-Feb-11	AB48040	001	2.3e-14
15-Feb-11	AB48043	057	<8e-15	15-Feb-11	AB48042	057	2.3e-14
22-Feb-11	AB48787	057	<8e-15	22-Feb-11	AB48786	057	2.4e-14
22-Feb-11	AB48789	001	<5e-15	22-Feb-11	AB48788	001	2.1e-14
01-Mar-11	AB49486	057	<7e-15	01-Mar-11	AB49485	057	3.1e-14
01-Mar-11	AB49488	001	<5e-15	01-Mar-11	AB49487	001	2.6e-14
08-Mar-11	AB50300	001	<7e-15	08-Mar-11	AB50299	001	3.0e-14
08-Mar-11	AB50302	057	<5e-15	08-Mar-11	AB50301	057	3.2e-14
15-Mar-11	AB51009	001	<7e-15	15-Mar-11	AB51008	001	2.4e-14
15-Mar-11	AB51011	057	<5e-15	15-Mar-11	AB51010	057	2.8e-14
22-Mar-11	AB51858	001	<5e-15	22-Mar-11	AB51857	001	2.4e-14
22-Mar-11	AB51860	057	<8e-15	22-Mar-11	AB51859	057	2.5e-14
29-Mar-11	AB52697	001	1.20e-13	29-Mar-11	AB52696	001	3.4e-14
29-Mar-11	AB52699	057	1.24e-13	29-Mar-11	AB52698	057	3.8e-14
05-Apr-11	AB52906	001	5.1e-14	05-Apr-11	AB52905	001	2.9e-14
05-Apr-11	AB52908	057	4.9e-14	05-Apr-11	AB52907	057	3.4e-14
12-Apr-11	AB53312	001	6e-15	12-Apr-11	AB53311	001	1.9e-14
12-Apr-11	AB53314	057	1.2e-14	12-Apr-11	AB53313	057	2.2e-14
19-Apr-11	AB54466	057	<1.2e-14	19-Apr-11	AB54465	057	2.7e-14
19-Apr-11	AB54468	001	<9e-15	19-Apr-11	AB54467	001	2.1e-14
26-Apr-11	AB55126	001	<6e-15	26-Apr-11	AB55123	057	2.1e-14
03-May-11	AB55457	057	<7e-15	26-Apr-11	AB55125	001	1.8e-14
03-May-11	AB55459	001	<5e-15	03-May-11	AB55456	057	2.0e-14
10-May-11	AB56389	001	<7e-15	03-May-11	AB55458	001	1.9e-14
10-May-11	AB56391	057	<5e-15	10-May-11	AB56388	001	2.1e-14
17-May-11	AB57001	057	<7e-15	10-May-11	AB56390	057	2.5e-14
17-May-11	AB57003	001	<5e-15	17-May-11	AB57000	057	1.6e-14

**Comanche Peak Nuclear Power Plant
Environmental Sample Results**

<i>Air Iodine pCi/m3</i>				<i>Air Particulate pCi/m3</i>			
<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>I-131</i>	<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>Beta</i>
24-May-11	AB57653	001	<7e-15	17-May-11	AB57002	001	1.4e-14
24-May-11	AB57655	057	<5e-15	24-May-11	AB57652	001	2.5e-14
31-May-11	AB58438	001	<8e-15	24-May-11	AB57654	057	2.9e-14
31-May-11	AB58440	057	<5e-15	31-May-11	AB58437	001	2.0e-14
14-Jun-11	AB59694	001	<5e-15	31-May-11	AB58439	057	2.3e-14
14-Jun-11	AB59696	057	<5e-15	14-Jun-11	AB59693	001	2.5e-14
21-Jun-11	AB55124	057	<8e-15	14-Jun-11	AB59695	057	3.0e-14
21-Jun-11	AB60376	001	<5e-15	21-Jun-11	AB60375	001	1.8e-14
21-Jun-11	AB60378	057	<3e-15	21-Jun-11	AB60377	057	2.0e-14
28-Jun-11	AB61348	057	<8e-15	28-Jun-11	AB61347	057	1.7e-14
28-Jun-11	AB61350	001	<6e-15	28-Jun-11	AB61349	001	1.5e-14
05-Jul-11	AB61944	001	<8e-15	05-Jul-11	AB61943	001	2.1e-14
05-Jul-11	AB61946	057	<5e-15	05-Jul-11	AB61945	057	2.7e-14
12-Jul-11	AB63978	001	<7e-15	12-Jul-11	AB63977	001	2.0e-14
12-Jul-11	AB63980	057	<8e-15	12-Jul-11	AB63979	057	2.1e-14
18-Jul-11	AB64652	001	<8e-15	19-Jul-11	AB64651	001	1.6e-14
19-Jul-11	AB64654	057	<6e-15	19-Jul-11	AB64653	057	1.8e-14
26-Jul-11	AB65520	001	<8e-15	26-Jul-11	AB65519	001	1.7e-14
26-Jul-11	AB65522	057	<5e-15	26-Jul-11	AB65521	057	1.9e-14
02-Aug-11	AB66118	001	<5e-15	02-Aug-11	AB66117	001	1.8e-14
02-Aug-11	AB66120	057	<5e-15	02-Aug-11	AB66119	057	1.7e-14
09-Aug-11	AB67146	001	<5e-15	09-Aug-11	AB67145	001	2.0e-14
09-Aug-11	AB67148	057	<5e-15	09-Aug-11	AB67147	057	2.0e-14
16-Aug-11	AB67638	001	<5e-15	16-Aug-11	AB67637	001	2.3e-14
16-Aug-11	AB67640	057	<6e-15	16-Aug-11	AB67639	057	2.1e-14
23-Aug-11	AB68522	001	<5e-15	23-Aug-11	AB68521	001	3.3e-14
23-Aug-11	AB68524	057	<6e-15	23-Aug-11	AB68523	057	3.3e-14
30-Aug-11	AB68755	001	<4e-15	30-Aug-11	AB68754	001	3.6e-14
30-Aug-11	AB68757	057	<4e-15	30-Aug-11	AB68756	057	3.5e-14
06-Sep-11	AB69111	001	<7e-15	06-Sep-11	AB69110	001	1.7e-14
06-Sep-11	AB69113	057	<5e-15	06-Sep-11	AB69112	057	3.5e-14
13-Sep-11	AB69876	001	<7e-15	13-Sep-11	AB69875	001	3.9e-14
13-Sep-11	AB69878	057	<5e-15	13-Sep-11	AB69877	057	4.1e-14
20-Sep-11	AB70566	001	<7e-15	20-Sep-11	AB70565	001	3.7e-14
20-Sep-11	AB70568	057	<5e-15	20-Sep-11	AB70567	057	3.6e-14
27-Sep-11	AB71347	001	<4e-15	27-Sep-11	AB71346	001	3.7e-14
27-Sep-11	AB71349	057	<3e-15	27-Sep-11	AB71348	057	3.7e-14
04-Oct-11	AB71874	001	<4e-15	04-Oct-11	AB71873	001	3.1e-14

**Comanche Peak Nuclear Power Plant
Environmental Sample Results**

<i>Air Iodine pCi/m3</i>				<i>Air Particulate pCi/m3</i>			
<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>I-131</i>	<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>Beta</i>
04-Oct-11	AB71876	057	<3e-15	04-Oct-11	AB71875	057	3.3e-14
11-Oct-11	AB72285	001	<4e-15	11-Oct-11	AB72284	001	2.2e-14
11-Oct-11	AB72287	057	<3e-15	11-Oct-11	AB72286	057	2.1e-14
18-Oct-11	AB72942	001	<8e-15	18-Oct-11	AB72941	001	3.1e-14
18-Oct-11	AB72944	057	<5e-15	18-Oct-11	AB72943	057	3.1e-14
25-Oct-11	AB73529	057	<8e-15	25-Oct-11	AB73528	057	3.8e-14
25-Oct-11	AB73531	001	<5e-15	25-Oct-11	AB73530	001	3.6e-14
01-Nov-11	AB73905	057	<8e-15	01-Nov-11	AB73904	057	4.2e-14
01-Nov-11	AB73907	001	<5e-15	01-Nov-11	AB73906	001	4.4e-14
08-Nov-11	AB74510	057	<1.0e-14	08-Nov-11	AB74509	057	2.8e-14
08-Nov-11	AB74512	001	<6e-15	08-Nov-11	AB74511	001	3.0e-14
15-Nov-11	AB74781	001	<4e-15	15-Nov-11	AB74780	001	3.3e-14
15-Nov-11	AB74783	057	<3e-15	15-Nov-11	AB74782	057	3.3e-14
22-Nov-11	AB75120	001	<7e-15	22-Nov-11	AB75119	001	3.9e-14
22-Nov-11	AB75122	057	<5e-15	22-Nov-11	AB75121	057	3.9e-14
29-Nov-11	AB75419	001	<5e-15	29-Nov-11	AB75418	001	3.0e-14
29-Nov-11	AB75421	057	<8e-15	29-Nov-11	AB75420	057	3.1e-14
06-Dec-11	AB75885	001	<8e-15	06-Dec-11	AB75884	001	3.7e-14
06-Dec-11	AB75887	057	<8e-15	06-Dec-11	AB75886	057	4.0e-14
13-Dec-11	AB76114	001	<1.0e-14	13-Dec-11	AB76113	001	5.5e-14
13-Dec-11	AB76116	057	<5e-15	13-Dec-11	AB76115	057	5.7e-14
20-Dec-11	AB76482	057	<8e-15	20-Dec-11	AB76481	057	3.6e-14
20-Dec-11	AB76484	001	<5e-15	20-Dec-11	AB76483	001	4.0e-14
27-Dec-11	AB76677	057	<4e-15	27-Dec-11	AB76678	057	1.9e-14
27-Dec-11	AB76680	001	<3e-15	27-Dec-11	AB76679	001	3.0e-14
03-Jan-12	AB77055	001	<8e-15	03-Jan-12	AB77054	001	3.7e-14
03-Jan-12	AB77057	057	<5e-15	03-Jan-12	AB77056	057	3.6e-14
10-Jan-12	AB77628	001	<5e-15	10-Jan-12	AB77627	001	3.6e-14
10-Jan-12	AB77630	057	<3e-15	10-Jan-12	AB77629	057	3.8e-14
17-Jan-12	AB78080	001	<7e-15	17-Jan-12	AB78079	001	2.8e-14
17-Jan-12	AB78082	057	<1.0e-14	17-Jan-12	AB78081	057	3.2e-14

**Comanche Peak Nuclear Power Plant
Environmental Sample Results**

Date	Lab No	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
<i>Air Particulate Composite pCi/Sample</i>													
17-Jun-11	AB5942 00	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
17-Jun-11	6 1	<1.2e-5	<3.5e-6	<4.1e-6	<3.7e-6	<4.3e-6	<6.6e-6	<3.4e-6	<4.1e-6	<3.7e-6	<3.4e-6	<7.8e-6	<6.2e-6
17-Jun-11	AB5942 05	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
17-Jun-11	7 7	<1.2e-5	<3.6e-6	<3.9e-6	<3.8e-6	<4.3e-6	<6.8e-6	<3.5e-6	<4.6e-6	<3.6e-6	<3.7e-6	<8.2e-6	<6.4e-6
19-Oct-11	AB7258 00	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
19-Oct-11	5 1	<1.2e-5	<3.7e-6	<4.3e-6	<3.9e-6	<4.2e-6	<7.6e-6	<3.4e-6	<4.5e-6	<3.7e-6	<3.7e-6	<8.9e-6	<6.6e-6
19-Oct-11	AB7258 05	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
19-Oct-11	6 7	<7.7e-6	<2.3e-6	<2.7e-6	<2.5e-6	<2.7e-6	<4.8e-6	<2.4e-6	<2.4e-6	<2.4e-6	<2.2e-6	<5.4e-6	<4.0e-6
<i>Food Product pCi/kg</i>													
09-Nov-11	AB7452 09	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
09-Nov-11	0 3	<4.5e-8	<1.1e-8	<1.2e-8	<9.6e-9	<1.1e-8	<2.2e-8	<1.6e-8	<1.5e-8	<1.0e-8	<1.1e-8	<2.4e-8	<1.8e-8
<i>Fish pCi/kg</i>													
09-Mar-11	AB5332 09	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
09-Mar-11	0 1	<4.0e-8	<4.7e-9	<4.5e-9	<3.6e-9	<4.0e-9	<1.3e-8	<2.2e-8	<1.1e-8	<4.1e-9	<5.7e-9	<1.1e-8	<8.4e-9
09-Apr-11	AB5332 09	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
09-Apr-11	1 2	<2.2e-8	<4.4e-9	<5.3e-9	<4.1e-9	<4.4e-9	<1.3e-8	<8.3e-9	<6.8e-9	<4.3e-9	<5.0e-9	<1.3e-8	<7.7e-9
28-Sep-11	AB7187 09	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
28-Sep-11	7 1	<2.3e-8	<5.2e-9	<5.8e-9	<4.6e-9	<5.0e-9	<1.3e-8	<8.3e-9	<7.5e-9	<5.1e-9	<5.5e-9	<1.3e-8	<8.9e-9
28-Sep-11	AB7187 09	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
28-Sep-11	8 1	<2.2e-8	<4.2e-9	<5.0e-9	<4.4e-9	<4.4e-9	<1.2e-8	<7.6e-9	<6.4e-9	<4.2e-9	<4.7e-9	<1.2e-8	<7.4e-9
<i>Sediment pCi/kg</i>													
05-Jan-11	AB4473 08	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
05-Jan-11	5 8	<2.70e-7	<5.5e-8	<7.9e-8	<7.9e-8	<1.10e-7	<1.34e-7	<8.5e-8	<9.1e-8	<7.0e-8	<8.8e-8	<2.22e-7	<9.9e-8
03-Jul-11	AB6194 08	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
03-Jul-11	7 8	<1.05e-7	<2.1e-8	<2.2e-8	<2.5e-8	1.55e-7	<4.4e-8	<4.0e-8	<3.4e-8	<2.2e-8	<2.6e-8	<5.3e-8	<3.9e-8
03-Jan-12	AB7705 08	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
03-Jan-12	8 8	<2.90e-7	<7.7e-8	<6.0e-8	<6.3e-8	<7.2e-8	<1.43e-7	<1.03e-7	<8.6e-8	<6.1e-8	<7.2e-8	<1.73e-7	<9.7e-8
<i>Vegetation for Milk pCi/kg</i>													
25-Jan-11	AB4610 01	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
25-Jan-11	2 4	<1.1e-7	<2.4e-8	<2.3e-8	<2.4e-8	<2.6e-8	<5.0e-8	<3.8e-8	<3.4e-8	<2.5e-8	<2.7e-8	<5.4e-8	<4.5e-8
22-Feb-11	AB4879 01	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
22-Feb-11	2 4	<9.4e-8	<2.1e-8	<2.0e-8	<2.2e-8	<2.2e-8	<4.3e-8	<3.3e-8	<2.8e-8	<2.1e-8	<2.3e-8	<4.6e-8	<3.9e-8
29-Mar-11	AB5270 09	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
29-Mar-11	0 0	<1.15e-7	<2.6e-8	<2.4e-8	<2.5e-8	<2.7e-8	<5.2e-8	5.7e-8	<3.5e-8	<2.5e-8	<2.8e-8	<5.7e-8	<4.6e-8

**Comanche Peak Nuclear Power Plant
Environmental Sample Results**

29- Mar- 11	AB5270	01	<1.48 e-7	<3.2 e-8	<3.4 e-8	<3.5 e-8	<3.3e- 8	<6.4e- 8	2.06e- 7	<4.7 e-8	<2.9 e-8	<3.3 e-8	<6.9e- 8	<5.4 e-8
26- Apr- 11	AB5512	01	<8.7e- 8	<1.8 e-8	<2.0 e-8	<1.9 e-8	<2.2e- 8	<3.8e- 8	<3.4e- 8	<2.9 e-8	<1.7 e-8	<2.0 e-8	<4.0e- 8	<3.4 e-8
31- May- 11	AB5844	01	<7.5e- 8	<1.6 e-8	<1.7 e-8	<1.4 e-8	<1.7e- 8	<3.4e- 8	<3.0e- 8	<2.3 e-8	<1.5 e-8	<1.7 e-8	<3.4e- 8	<2.8 e-8
28- Jun- 11	AB6135	09	<8.8e- 8	<1.4 e-8	<1.5 e-8	<1.3 e-8	<1.5e- 8	<3.4e- 8	<3.5e- 8	<2.8 e-8	<1.4 e-8	<1.7 e-8	<3.3e- 8	<2.5 e-8
28- Jun- 11	AB6135	01	<5.1e- 8	<1.1 e-8	<1.1 e-8	<9.8 e-9	<1.1e- 8	<2.3e- 8	<1.9e- 8	<1.6 e-8	<9.0 e-9	<1.1 e-8	<2.4e- 8	<1.9 e-8
28- Jul- 11	AB6552	01	<6.1e- 8	<1.2 e-8	<1.4 e-8	<1.2 e-8	<1.3e- 8	<2.7e- 8	<2.1e- 8	<2.0 e-8	<1.2 e-8	<1.4 e-8	<3.1e- 8	<2.2 e-8
28- Aug- 11	AB6875	01	<6.2e- 8	<1.3 e-8	<1.4 e-8	<1.4 e-8	<1.5e- 8	<3.0e- 8	<2.2e- 8	<1.9 e-8	<1.3 e-8	<1.5 e-8	<3.2e- 8	<2.4 e-8
27- Sep- 11	AB7135	01	<5.9e- 8	<1.4 e-8	<1.4 e-8	<1.2 e-8	<1.3e- 8	<2.9e- 8	<2.1e- 8	<1.7 e-8	<1.3 e-8	<1.5 e-8	<3.0e- 8	<2.3 e-8
27- Sep- 11	AB7135	09	<4.7e- 8	<1.1 e-8	<1.2 e-8	<9.7 e-9	<1.1e- 8	<2.4e- 8	<1.6e- 8	<1.6 e-8	<9.8 e-9	<1.2 e-8	<2.6e- 8	<1.8 e-8
25- Oct- 11	AB7352	01	<6.4e- 8	<1.4 e-8	<1.5 e-8	<1.4 e-8	<1.5e- 8	<3.1e- 8	<2.3e- 8	<2.0 e-8	<1.3 e-8	<1.5 e-8	<3.4e- 8	<2.5 e-8
29- Nov- 11	AB7542	01	<6.4e- 8	<1.7 e-8	<1.8 e-8	<1.7 e-8	<1.8e- 8	<3.4e- 8	<2.1e- 8	<1.9 e-8	<1.7 e-8	<1.8 e-8	<4.0e- 8	<3.0 e-8
27- Dec- 11	AB7668	01	<3.5e- 8	<9.5 e-9	<1.1 e-8	<9.5 e-9	<1.1e- 8	<1.9e- 8	<1.2e- 8	<1.1 e-8	<9.6 e-9	<9.4 e-9	<2.1e- 8	<1.7 e-8
27- Dec- 11	AB7668	09	<5.6e- 8	<1.3 e-8	<1.3 e-8	<1.2 e-8	<1.3e- 8	<2.2e- 8	<2.0e- 8	<1.6 e-8	<1.2 e-8	<1.3 e-8	<2.6e- 8	<2.1 e-8

**Comanche Peak Nuclear Power Plant
Environmental Sample Results**

Date	Lab No	Station	Beta	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	H-3	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
Water-Surface																
25-Jan-11	AB461 03	86	7.3e-9	<8.4e-9	<2.2e-9	<2.3e-9	<2.2e-9	<2.3e-9	<4.4e-9		<2.6e-9	<2.5e-9	<2.2e-9	<2.3e-9	<4.7e-9	<3.9e-9
25-Jan-11	AB461 04	085	1.2e-8	<7.2e-9	<1.9e-9	<2.1e-9	<1.9e-9	<2.1e-9	<3.8e-9		<2.4e-9	<2.9e-9	<1.8e-9	<2.0e-9	<4.2e-9	<3.1e-9
22-Feb-11	AB487 90	086	6.8e-9	<8.5e-9	<2.2e-9	<2.2e-9	<2.2e-9	<2.3e-9	<4.4e-9		<2.6e-9	<2.6e-9	<2.2e-9	<2.4e-9	<4.6e-9	<3.8e-9
22-Feb-11	AB487 91	085	1.6e-8	<9.0e-9	<2.0e-9	<2.0e-9	<1.9e-9	<2.1e-9	<4.1e-9		<3.0e-9	<3.2e-9	<2.0e-9	<2.1e-9	<4.1e-9	<3.3e-9
29-Mar-11	AB527 02	086	8.8e-9	<8.2e-9	<2.2e-9	<2.3e-9	<2.1e-9	<2.3e-9	<4.2e-9		<2.6e-9	<2.8e-9	<2.2e-9	<2.3e-9	<4.7e-9	<3.9e-9
29-Mar-11	AB527 03	085	1.6e-5	<7.7e-9	<1.9e-9	<2.1e-9	<2.0e-9	<2.2e-9	<4.0e-9		<2.4e-9	<2.8e-9	<1.9e-9	<2.0e-9	<4.2e-9	<3.1e-9
26-Apr-11	AB551 28	085	1.5e-8	<9.2e-9	<2.2e-9	<2.2e-9	<2.0e-9	<2.3e-9	<4.2e-9		<3.4e-9	<2.8e-9	<2.1e-9	<2.4e-9	<4.3e-9	<3.9e-9
26-Apr-11	AB551 29	086	7.2e-9	<8.7e-9	<1.9e-9	<2.1e-9	<1.9e-9	<1.9e-9	<4.1e-9		<2.9e-9	<3.4e-9	<1.8e-9	<2.2e-9	<4.3e-9	<3.4e-9
31-May-11	AB584 41	086	1.3e-8	<1.0e-8	<2.1e-9	<2.1e-9	<2.1e-9	<2.3e-9	<4.3e-9		<3.6e-9	<3.1e-9	<2.1e-9	<2.4e-9	<4.5e-9	<3.9e-9
31-May-11	AB584 42	085	1.8e-8	<1.1e-8	<2.2e-9	<2.1e-9	<2.0e-9	<2.3e-9	<4.4e-9		<4.0e-9	<3.3e-9	<2.1e-9	<2.5e-9	<4.5e-9	<3.9e-9
28-Jun-11	AB613 53	086	1.4e-8	<9.8e-9	<2.2e-9	<2.3e-9	<2.0e-9	<2.4e-9	<4.4e-9		<3.7e-9	<3.2e-9	<2.1e-9	<2.4e-9	<4.4e-9	<3.9e-9
28-Jun-11	AB613 54	085	1.7e-8	<9.2e-9	<2.0e-9	<2.1e-9	<2.0e-9	<2.1e-9	<4.0e-9		<3.3e-9	<3.2e-9	<1.9e-9	<2.2e-9	<4.1e-9	<3.3e-9
28-Jun-11	AB655 24	085	2.2e-8	<9.4e-9	<2.1e-9	<2.3e-9	<2.1e-9	<2.5e-9	<4.4e-9		<3.5e-9	<3.1e-9	<2.2e-9	<2.4e-9	<4.6e-9	<3.9e-9
28-Jun-11	AB655 25	086	1.4e-8	<9.1e-9	<1.9e-9	<2.1e-9	<2.0e-9	<2.1e-9	<3.9e-9		<3.0e-9	<3.3e-9	<1.9e-9	<2.1e-9	<4.2e-9	<3.3e-9
28-Aug-11	AB687 59	085	1.8e-8	<7.8e-9	<2.1e-9	<2.3e-9	<2.2e-9	<2.3e-9	<4.3e-9		<2.3e-9	<2.4e-9	<2.3e-9	<2.2e-9	<4.9e-9	<3.8e-9
28-Aug-11	AB687 60	086	1.1e-8	<7.0e-9	<1.9e-9	<2.2e-9	<2.0e-9	<2.1e-9	<3.6e-9		<2.1e-9	<2.8e-9	<1.9e-9	<1.9e-9	<4.3e-9	<3.3e-9

**Comanche Peak Nuclear Power Plant
Environmental Sample Results**

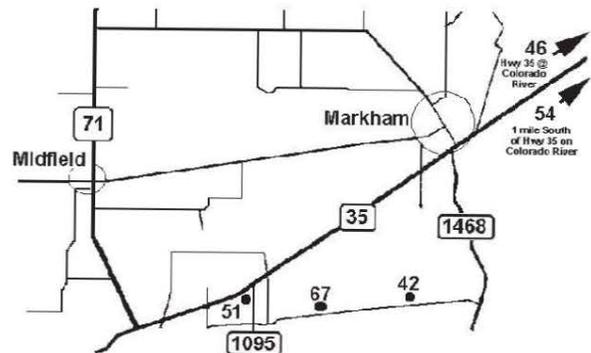
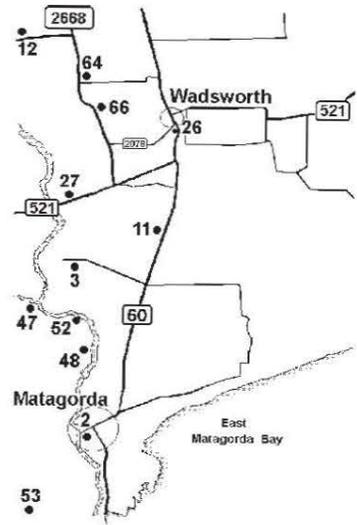
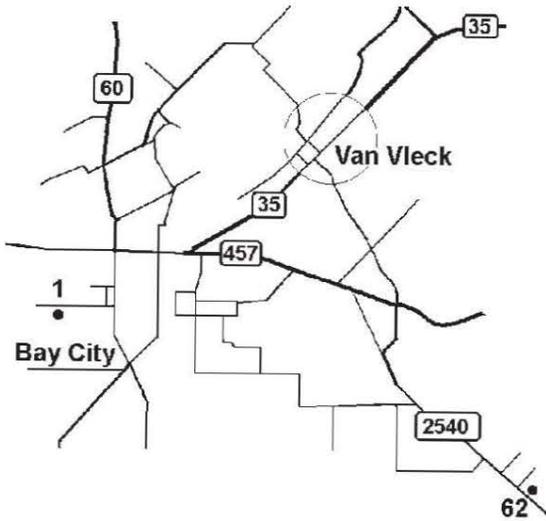
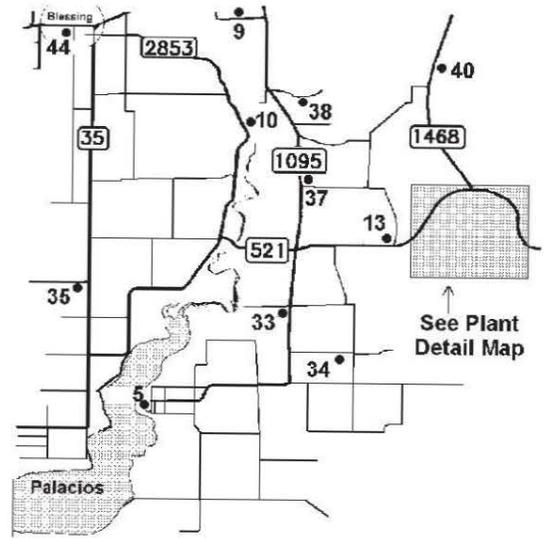
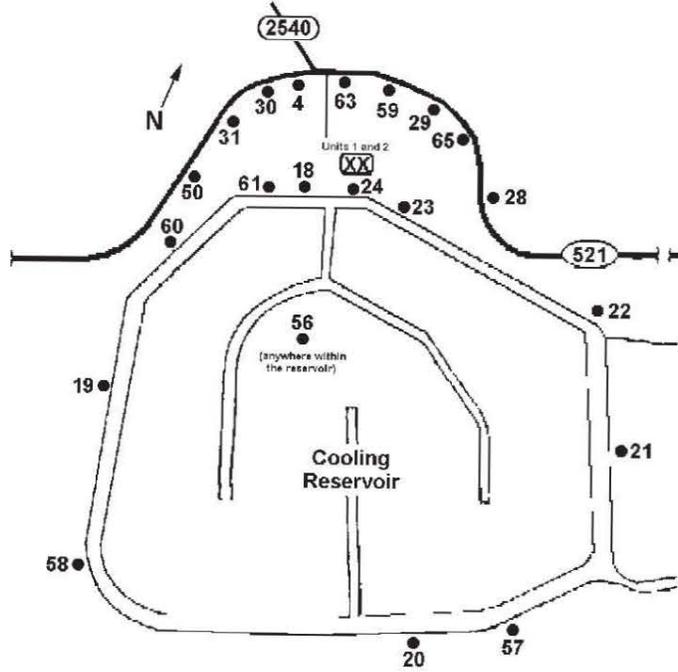
27- Sep -11	AB713 52	085	1.8e -8	<8.4 e-9	<2.2 e-9	<2.3 e-9	<2.3 e-9	<2.3 e-9	<4.2 e-9	<2.7 e-9	<2.8 e-9	<2.2 e-9	<2.3 e-9	<4.8 e-9	<4.0 e-9
27- Sep -11	AB713 53	086	7.9e -9	<7.5 e-9	<1.9 e-9	<2.0 e-9	<1.9 e-9	<2.0 e-9	<3.8 e-9	<2.3 e-9	<2.5 e-9	<1.8 e-9	<1.9 e-9	<4.4 e-9	<3.2 e-9
25- Oct -11	AB735 26	085	1.4e -8	<1.1 e-8	<2.2 e-9	<2.2 e-9	<2.2 e-9	<2.4 e-9	<4.1 e-9	<3.3 e-9	<2.9 e-9	<2.2 e-9	<2.3 e-9	<4.6 e-9	<3.8 e-9
25- Oct -11	AB735 27	086	<3.6 e-9	<8.8 e-9	<2.0 e-9	<2.1 e-9	<2.1 e-9	<2.1 e-9	<4.2 e-9	<2.9 e-9	<3.1 e-9	<1.9 e-9	<2.1 e-9	<4.5 e-9	<3.6 e-9
29- Nov -11	AB754 23	085	1.3e -8	<7.9 e-9	<2.1 e-9	<2.2 e-9	<2.2 e-9	<2.4 e-9	<3.8 e-9	<2.5 e-9	<2.4 e-9	<2.2 e-9	<2.2 e-9	<4.6 e-9	<3.8 e-9
29- Nov -11	AB754 24	086	5.0e -9	<7.7 e-9	<2.1 e-9	<2.2 e-9	<2.3 e-9	<2.2 e-9	<4.0 e-9	<2.3 e-9	<2.9 e-9	<1.9 e-9	<2.3 e-9	<5.7 e-9	<3.4 e-9
27- Dec -11	AB766 83	086	7.7e -9	<7.9 e-9	<2.3 e-9	<2.2 e-9	<2.3 e-9	<2.4 e-9	<4.1 e-9	<2.4 e-9	<2.5 e-9	<2.2 e-9	<2.2 e-9	<4.6 e-9	<3.8 e-9
27- Dec -11	AB766 84	085	1.1e -8	<7.9 e-9	<1.9 e-9	<2.1 e-9	<2.0 e-9	<2.1 e-9	<3.9 e-9	<2.3 e-9	<2.8 e-9	<1.9 e-9	<2.0 e-9	<4.0 e-9	<3.1 e-9

Water Surface

Composite pCi/l

29- Jun -11	AB594 31	085								1.45 e-5					
29- Jun -11	AB594 32	086								<1.0 e-6					
12- Sep -11	AB687 11	085								1.90 e-5					
12- Sep -11	AB687 12	086								<1.0 e-6					
20- Oct -11	AB725 91	085								1.67 e-5					

South Texas Project Monitoring Station Locations



Note: Sample type not indicated on maps.

South Texas Project
Optically Stimulated Luminescence (OSL) Monitoring Results
¹(quarterly and annual readings are in mrem)

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
1	16	16	19	17	68	
2	17	17	19	16	69	
3	15	16	19	18	68	
4	18	19	16	15	68	
5	15	15	18	18	66	
9	18	19	17	16	70	
10	16	17	18	16	67	
11	16	17	19	18	70	
12	18	18	19	18	73	
13	18	19	17	16	70	
18	14	15	18	17	64	
19	16	17	17	16	66	
20	16	17	16	18	67	
21	15	16	17	19	67	
22	16	16	19	16	67	
23	15	16	19	19	69	
24	19	16	17	16	68	
26	15	16	20	18	69	
27	18	18	19	16	71	
28	17	18	19	16	70	
29	16	17	23	19	75	
30	19	19	11	25	74	
31	18	18	20	17	73	
33	18	18	19	18	73	
34	16	17	24	16	73	
35	19	19	19	17	74	
37	17	17	19	21	74	
38	16	17	29	15	77	
40	21	22	19	21	83	
42	15	16	23	18	72	
44	21	21	22	16	80	
50	19	20	26	18	83	
51	16	17	21	16	70	
57	16	16	21	18	71	
58	16	17	20	16	69	
59	18	18	23	19	78	
60	15	17	22	17	71	
61	14	19	20	19	72	
62	9	18	22	17	66	
63	17	18	21	18	74	
64	17	18	24	15	74	
65	17	18	20	14	69	
66	18	19	22	14	73	
67	18	14	13	16	61	

NOTE: ¹Background is not subtracted from the data

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

**South Texas Project
Environmental Sample Results**

<i>Air Iodine pCi/m3</i>				<i>Air Particulate pCi/m3</i>			
<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>I-131</i>	<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>Beta</i>
04-Jan-11	AB44164	035	<5e-15	04-Jan-11	AB44163	035	2.1e-14
04-Jan-11	AB44166	030	<7e-15	04-Jan-11	AB44165	030	2.2e-14
12-Jan-11	AB44980	035	<6e-15	12-Jan-11	AB44979	035	2.8e-14
12-Jan-11	AB44982	030	<4e-15	12-Jan-11	AB44981	030	2.7e-14
19-Jan-11	AB45701	035	<8e-15	19-Jan-11	AB45700	035	2.8e-14
19-Jan-11	AB45703	030	<5e-15	19-Jan-11	AB45702	030	2.7e-14
25-Jan-11	AB46095	035	<9e-15	25-Jan-11	AB46094	035	2.5e-14
25-Jan-11	AB46097	030	<6e-15	25-Jan-11	AB46096	030	2.5e-14
01-Feb-11	AB47376	035	<1.2e-14	01-Feb-11	AB47375	035	2.6e-14
01-Feb-11	AB47378	030	<8e-15	01-Feb-11	AB47377	030	2.5e-14
09-Feb-11	AB47619	035	<8e-15	09-Feb-11	AB47618	035	2.2e-14
09-Feb-11	AB47621	030	<6e-15	09-Feb-11	AB47620	030	2.3e-14
15-Feb-11	AB48045	035	<6e-15	15-Feb-11	AB48044	035	1.9e-14
15-Feb-11	AB48047	030	<6e-15	15-Feb-11	AB48046	030	1.9e-14
22-Feb-11	AB48783	035	<7e-15	22-Feb-11	AB48782	035	1.8e-14
22-Feb-11	AB48785	030	<5e-15	22-Feb-11	AB48784	030	1.9e-14
01-Mar-11	AB49779	035	<8e-15	01-Mar-11	AB49778	035	1.9e-14
02-Mar-11	AB49781	030	<5e-15	01-Mar-11	AB49780	030	1.8e-14
08-Mar-11	AB50852	035	<1.1e-14	08-Mar-11	AB50851	035	2.7e-14
08-Mar-11	AB50854	030	<7e-15	08-Mar-11	AB50853	030	2.6e-14
15-Mar-11	AB51217	035	<8e-15	15-Mar-11	AB51216	035	2.2e-14
15-Mar-11	AB51219	030	<5e-15	15-Mar-11	AB51218	030	2.2e-14
22-Mar-11	AB52222	035	<8e-15	22-Mar-11	AB52221	035	2.1e-14
22-Mar-11	AB52224	030	<5e-15	22-Mar-11	AB52223	030	2.3e-14
29-Mar-11	AB52854	035	5.4e-14	29-Mar-11	AB52853	035	2.9e-14
29-Mar-11	AB52856	030	4.6e-14	29-Mar-11	AB52855	030	2.9e-14
05-Apr-11	AB52910	035	2.8e-14	05-Apr-11	AB52909	035	2.7e-14
05-Apr-11	AB52912	030	1.3e-14	05-Apr-11	AB52911	030	3.2e-14
12-Apr-11	AB53316	035	<9e-15	12-Apr-11	AB53315	035	1.7e-14
12-Apr-11	AB53318	030	7e-15	12-Apr-11	AB53317	030	1.7e-14
19-Apr-11	AB54199	035	<6e-15	19-Apr-11	AB54198	035	2.0e-14
19-Apr-11	AB54201	030	<4e-15	19-Apr-11	AB54200	030	2.0e-14
27-Apr-11	AB55131	035	<8e-15	27-Apr-11	AB55130	035	1.4e-14
27-Apr-11	AB55133	030	<6e-15	27-Apr-11	AB55132	030	1.5e-14
04-May-11	AB56126	035	<9e-15	04-May-11	AB56125	035	1.6e-14
04-May-11	AB56128	030	<6e-15	04-May-11	AB56127	030	1.5e-14
10-May-11	AB56616	035	<6e-15	10-May-11	AB56615	035	2.3e-14
10-May-11	AB56618	030	<4e-15	10-May-11	AB56617	030	2.0e-14

**South Texas Project
Environmental Sample Results**

<i>Air Iodine pCi/m3</i>				<i>Air Particulate pCi/m3</i>			
<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>I-131</i>	<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>Beta</i>
17-May-11	AB57169	035	<8e-15	17-May-11	AB57168	035	1.5e-14
17-May-11	AB57171	030	<8e-15	17-May-11	AB57170	030	1.6e-14
24-May-11	AB57857	035	<7e-15	24-May-11	AB57856	035	2.3e-14
24-May-11	AB57859	030	<5e-15	24-May-11	AB57858	030	2.3e-14
31-May-11	AB58433	035	<7e-15	31-May-11	AB58432	035	1.7e-14
31-May-11	AB58435	030	<5e-15	31-May-11	AB58434	030	1.6e-14
07-Jun-11	AB58942	035	<5e-15	07-Jun-11	AB58941	035	2.2e-14
07-Jun-11	AB58944	030	<7e-15	07-Jun-11	AB58943	030	2.0e-14
14-Jun-11	AB59941	035	<7e-15	14-Jun-11	AB59940	035	2.6e-14
14-Jun-11	AB59943	030	<5e-15	14-Jun-11	AB59942	030	2.6e-14
21-Jun-11	AB60694	035	<5e-15	21-Jun-11	AB60695	030	1.8e-14
21-Jun-11	AB60696	030	<4e-15	28-Jun-11	AB61340	035	1.3e-14
28-Jun-11	AB61341	035	<7e-15	28-Jun-11	AB61342	030	1.3e-14
28-Jun-11	AB61343	030	<5e-15	05-Jul-11	AB61938	035	2.3e-14
05-Jul-11	AB61939	035	<8e-15	05-Jul-11	AB61940	030	2.9e-14
05-Jul-11	AB61941	030	<5e-15	12-Jul-11	AB64503	035	1.6e-14
12-Jul-11	AB64504	035	<1.2e-14	12-Jul-11	AB64505	030	1.5e-14
12-Jul-11	AB64506	030	<8e-15	20-Jul-11	AB64991	035	1.6e-14
20-Jul-11	AB64992	035	<8e-15	20-Jul-11	AB64993	030	1.6e-14
20-Jul-11	AB64994	030	<6e-15	26-Jul-11	AB65797	035	1.9e-14
26-Jul-11	AB65798	035	<9e-15	26-Jul-11	AB65799	030	1.8e-14
26-Jul-11	AB65800	030	<6e-15	02-Aug-11	AB66832	035	1.2e-14
02-Aug-11	AB66833	035	<8e-15	02-Aug-11	AB66834	030	1.2e-14
02-Aug-11	AB66835	030	<8e-15	09-Aug-11	AB67318	035	1.2e-14
09-Aug-11	AB67319	035	<7e-15	09-Aug-11	AB67320	030	1.3e-14
09-Aug-11	AB67321	030	<7e-15	17-Aug-11	AB68165	035	1.5e-14
17-Aug-11	AB68168	030	<6e-15	23-Aug-11	AB68525	035	2.4e-14
23-Aug-11	AB68526	035	<6e-15	23-Aug-11	AB68527	030	2.3e-14
23-Aug-11	AB68528	030	<5e-15	30-Aug-11	AB68992	030	3.1e-14
30-Aug-11	AB68991	035	<8e-15	06-Sep-11	AB69306	035	2.5e-14
30-Aug-11	AB68993	030	<6e-15	06-Sep-11	AB69308	030	2.4e-14
06-Sep-11	AB69307	035	<8e-15	13-Sep-11	AB69879	035	3.2e-14
06-Sep-11	AB69309	030	<6e-15	13-Sep-11	AB69881	030	3.1e-14
13-Sep-11	AB69880	035	<8e-15	20-Sep-11	AB70569	035	3.0e-14
13-Sep-11	AB69882	030	<5e-15	20-Sep-11	AB70571	030	3.3e-14
20-Sep-11	AB70570	035	<8e-15	27-Sep-11	AB71341	035	2.8e-14
20-Sep-11	AB70572	030	<6e-15	27-Sep-11	AB71343	030	2.7e-14
27-Sep-11	AB71342	035	<7e-15	30-Sep-11	AB68990	035	3.0e-14
27-Sep-11	AB71344	030	<5e-15	04-Oct-11	AB71879	035	2.2e-14

**South Texas Project
Environmental Sample Results**

<i>Air Iodine pCi/m3</i>				<i>Air Particulate pCi/m3</i>			
<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>I-131</i>	<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>Beta</i>
04-Oct-11	AB71880	035	<4e-15	04-Oct-11	AB71881	030	2.2e-14
04-Oct-11	AB71882	030	<3e-15	11-Oct-11	AB72427	035	2.0e-14
11-Oct-11	AB72428	035	<4e-15	11-Oct-11	AB72429	030	2.0e-14
11-Oct-11	AB72430	030	<3e-15	18-Oct-11	AB72801	035	2.8e-14
18-Oct-11	AB72802	035	<5e-15	26-Oct-11	AB73552	035	3.4e-14
18-Oct-11	AB72804	030	<3e-15	26-Oct-11	AB73554	030	3.6e-14
26-Oct-11	AB73553	035	<9e-15	03-Nov-11	AB74022	035	3.2e-14
26-Oct-11	AB73555	030	<6e-15	03-Nov-11	AB74024	030	3.2e-14
03-Nov-11	AB74023	035	<8e-15	09-Nov-11	AB74505	035	2.1e-14
03-Nov-11	AB74025	030	<5e-15	09-Nov-11	AB74507	030	2.1e-14
09-Nov-11	AB74506	035	<5e-15	16-Nov-11	AB74909	035	2.4e-14
09-Nov-11	AB74508	030	<4e-15	23-Nov-11	AB75166	035	2.2e-14
16-Nov-11	AB74910	035	<5e-15	23-Nov-11	AB75168	030	2.3e-14
16-Nov-11	AB74912	030	<3e-15	29-Nov-11	AB75414	035	2.5e-14
23-Nov-11	AB75167	035	<1.0e-14	29-Nov-11	AB75416	030	2.6e-14
23-Nov-11	AB75169	030	<7e-15	06-Dec-11	AB75880	035	2.5e-14
29-Nov-11	AB75415	035	<3e-15	06-Dec-11	AB75882	030	2.6e-14
29-Nov-11	AB75417	030	<6e-15	13-Dec-11	AB76158	035	4.4e-14
06-Dec-11	AB75881	035	<8e-15	13-Dec-11	AB76160	030	4.4e-14
06-Dec-11	AB75883	030	<5e-15	20-Dec-11	AB76371	035	2.6e-14
13-Dec-11	AB76159	035	<4e-15	20-Dec-11	AB76373	030	2.4e-14
13-Dec-11	AB76161	030	<3e-15	27-Dec-11	AB76912	035	2.6e-14
20-Dec-11	AB76372	035	<4e-15	27-Dec-11	AB76914	030	2.6e-14
20-Dec-11	AB76374	030	<3e-15	03-Jan-12	AB77059	035	5.9e-14
27-Dec-11	AB76913	035	<7e-15	03-Jan-12	AB77061	030	5.1e-14
27-Dec-11	AB76915	030	<4e-15	11-Jan-12	AB77798	035	1.9e-14
03-Jan-12	AB77060	035	<3e-15	11-Jan-12	AB77800	030	1.7e-14
03-Jan-12	AB77062	030	<8e-15	18-Jan-12	AB78475	035	2.9e-14
11-Jan-12	AB77799	035	<2e-15	18-Jan-12	AB78477	030	2.8e-14
11-Jan-12	AB77801	030	<4e-15				
18-Jan-12	AB78476	035	<5e-15				
18-Jan-12	AB78478	030	<3e-15				

**South Texas Project
Environmental Sample Results**

Date	Lab No	Site #	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
Air Particulate Composite pCi/Sample														
17-Jun-11	AB59 425	035	<1.2e-5	<3.5e-6	<3.8e-6	<3.7e-6	<4.1e-6	<6.8e-6	<3.4e-6	<4.6e-6	<3.6e-6	<3.5e-6	<8.2e-6	<6.1e-6
17-Jun-11	AB59 428	030	<7.8e-6	<2.2e-6	<3.0e-6	<2.6e-6	<3.0e-6	<4.9e-6	<2.4e-6	<3.1e-6	<2.4e-6	<2.4e-6	<5.8e-6	<4.1e-6
19-Oct-11	AB72 587	030	<6.5e-6	<2.1e-6	<2.3e-6	<2.0e-6	<2.0e-6	<3.9e-6	<1.8e-6	<3.0e-6	<1.9e-6	<1.8e-6	<4.4e-6	<3.2e-6
19-Oct-11	AB72 588	035	<4.2e-6	<1.3e-6	<1.8e-6	<1.4e-6	<1.4e-6	<2.8e-6	<1.1e-6	<1.6e-6	<1.4e-6	<1.2e-6	<3.1e-6	<2.3e-6
Food Product pCi/kg														
28-Jun-11	AB61 344	035	<5.9e-8	<1.3e-8	<1.5e-8	<1.2e-8	<1.4e-8	<2.8e-8	<2.3e-8	<1.8e-8	<1.3e-8	<1.4e-8	<2.9e-8	<2.3e-8
28-Jun-11	AB61 345	004	<6.0e-8	<1.2e-8	<1.4e-8	<1.3e-8	<1.3e-8	<2.9e-8	<2.1e-8	<2.1e-8	<1.3e-8	<1.4e-8	<3.1e-8	<2.1e-8
11-Oct-11	AB72 431	035	<5.7e-8	<1.3e-8	<1.4e-8	<1.2e-8	<1.3e-8	<2.9e-8	<2.0e-8	<1.7e-8	<1.3e-8	<1.4e-8	<2.9e-8	<2.3e-8
11-Oct-11	AB72 432	030	<4.7e-8	<1.1e-8	<1.3e-8	<1.1e-8	<1.2e-8	<2.5e-8	<1.6e-8	<1.3e-8	<1.1e-8	<1.2e-8	<2.7e-8	<1.9e-8
16-Nov-11	AB74 914	035	<6.1e-8	<1.5e-8	<1.7e-8	<1.5e-8	<1.6e-8	<3.4e-8	<1.8e-8	<1.7e-8	<1.5e-8	<1.6e-8	<3.7e-8	<2.5e-8
16-Nov-11	AB74 915	030	<7.1e-8	<1.7e-8	<1.9e-8	<1.7e-8	<1.7e-8	<3.9e-8	<2.3e-8	<2.1e-8	<1.7e-8	<1.8e-8	<4.4e-8	<2.9e-8
Fish pCi/kg														
17-May-09	AB57 172	053	<6.5e-8	<1.6e-8	<1.9e-8	<1.8e-8	<1.8e-8	<3.2e-8	<2.0e-8	<2.0e-8	<1.6e-8	<1.7e-8	<3.5e-8	<2.9e-8
09-Nov-11	AB74 779	053	<1.3e-8	<2.5e-8	<2.4e-8	<2.5e-8	<2.7e-8	<4.6e-8	<4.4e-8	<3.4e-8	<2.3e-8	<2.6e-8	<5.2e-8	<4.3e-8
Sediment pCi/kg														
19-May-11	AB57 562	052	<5.01e-7	<1.15e-7	<1.42e-7	<1.35e-7	<1.48e-7	<2.71e-7	<1.93e-7	<2.20e-7	<1.32e-7	<1.38e-7	<3.40e-7	<2.04e-7
Vegetation for Milk pCi/kg														
26-Jan-11	AB46 432	030	<3.1e-8	<7.3e-9	<8.4e-9	<7.1e-9	<7.8e-9	<1.8e-8	<9.8e-9	<9.4e-9	<7.4e-9	<7.4e-9	<2.0e-8	<1.4e-8
31-May-11	AB58 436	030	<4.7e-8	<9.1e-9	<1.1e-8	<9.2e-9	<9.7e-9	<2.3e-8	<1.8e-8	<1.5e-8	<8.9e-9	<1.1e-8	<2.4e-8	<1.7e-8
28-Jun-11	AB61 346	030	<4.4e-8	<9.3e-9	<1.1e-8	<8.3e-9	<9.8e-9	<2.3e-8	<1.7e-8	<1.3e-8	<8.7e-9	<1.1e-8	<2.3e-8	<1.7e-8
26-Jul-11	AB65 801	030	<5.9e-8	<1.5e-8	<1.2e-8	<1.3e-8	<3.3e-8	<2.0e-8	7.67e-8	<1.8e-8	<1.3e-8	<1.4e-8	<3.5e-8	<2.3e-8
27-Sep-11	AB71 345	030	<7.2e-8	<1.6e-8	<1.9e-8	<1.7e-8	<1.7e-8	<4.0e-8	<2.3e-8	<2.2e-8	<1.7e-8	<1.7e-8	<4.2e-8	<3.0e-8

**South Texas Project
Environmental Sample Results**

Date	Lab No	Station	Beta	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
Water-Surface pCi/l															
12-Jan-11	AB44983	046	7.1e-9	<1.1e-8	<2.3e-9	<2.2e-9	<2.2e-9	<2.4e-9	<4.5e-9	<3.9e-9	<3.2e-9	<2.2e-9	<2.4e-9	<4.6e-9	<4.0e-9
27-Jan-11	AB46539	052	5.0e-8	<8.3e-9	<1.9e-9	<2.2e-9	<2.2e-9	<2.2e-9	<4.1e-9	<2.8e-9	<3.0e-9	<1.9e-9	<2.1e-9	<4.2e-9	<3.2e-9
09-Feb-11	AB47622	046	5.2e-9	<8.3e-9	<1.9e-9	<2.0e-9	<2.1e-9	<2.1e-9	<4.1e-9	<2.8e-9	<3.2e-9	<2.0e-9	<2.0e-9	<4.0e-9	<3.4e-9
03-Mar-11	AB50126	052	3.5e-8	<9.5e-9	<2.2e-9	<2.3e-9	<2.4e-9	<2.4e-9	<4.5e-9	<3.1e-9	<3.1e-9	<2.2e-9	<2.4e-9	<4.8e-9	<3.9e-9
08-Mar-11	AB50855	046	5.4e-9	<9.8e-9	<1.9e-9	<2.1e-9	<2.1e-9	<2.1e-9	<4.1e-9	<3.6e-9	<3.7e-9	<1.9e-9	<2.1e-9	<4.4e-9	<3.5e-9
16-Mar-11	AB51856	052	5.3e-8	<1.2e-8	<2.3e-9	<2.2e-9	<2.3e-9	<2.3e-9	<4.7e-9	<4.0e-9	<3.4e-9	<2.2e-9	<2.6e-9	<4.8e-9	<4.2e-9
12-Apr-11	AB53319	054	6.0e-9	<1.1e-8	<2.3e-9	<2.1e-9	<2.3e-9	<2.3e-9	<4.5e-9	<3.6e-9	<3.3e-9	<2.1e-9	<2.5e-9	<4.7e-9	<4.1e-9
28-Apr-11	AB55247	052	8.5e-8	<8.9e-9	<2.2e-9	<2.2e-9	<2.2e-9	<2.2e-9	<4.0e-9	<3.1e-9	<2.8e-9	<2.1e-9	<2.4e-9	<4.6e-9	<3.8e-9
04-May-11	AB56129	054	4.4e-9	<8.7e-9	<2.2e-9	<2.1e-9	<2.3e-9	<2.3e-9	<4.1e-9	<3.2e-9	<3.0e-9	<2.1e-9	<2.3e-9	<4.4e-9	<3.8e-9
14-Jun-11	AB59944	054	5.9e-9	<8.0e-9	<2.1e-9	<2.3e-9	<2.4e-9	<2.4e-9	<4.2e-9	<2.6e-9	<2.5e-9	<2.1e-9	<2.2e-9	<4.3e-9	<3.7e-9
16-Jun-11	AB60942	052	1.21e-7	<1.3e-8	<2.4e-9	<2.4e-9	<2.4e-9	<2.4e-9	<4.7e-9	<5.2e-9	<3.8e-9	<2.1e-9	<2.6e-9	<4.6e-9	<3.9e-9
05-Jul-11	AB61942	054	5.8e-9	<9.0e-9	<2.2e-9	<2.2e-9	<2.4e-9	<2.4e-9	<4.1e-9	<3.4e-9	<3.1e-9	<2.1e-9	<2.4e-9	<4.4e-9	<3.9e-9
28-Jul-11	AB65950	052	1.26e-7	<9.8e-9	<2.0e-9	<2.3e-9	<2.1e-9	<2.1e-9	<4.5e-9	<3.4e-9	<3.7e-9	<1.9e-9	<2.2e-9	<4.2e-9	<3.7e-9
09-Aug-11	AB67322	054	3.3e-9	<1.1e-8	<2.0e-9	<2.0e-9	<2.0e-9	<2.0e-9	<4.3e-9	<3.5e-9	<3.5e-9	<1.8e-9	<2.2e-9	<4.2e-9	<3.5e-9
25-Aug-11	AB68761	052	1.82e-7	<9.3e-9	<2.1e-9	<2.2e-9	<2.1e-9	<2.1e-9	<4.5e-9	<3.1e-9	<3.2e-9	<2.0e-9	<2.4e-9	<4.4e-9	<3.6e-9
06-Sep-11	AB69310	046	4.1e-9	<8.1e-9	<2.2e-9	<2.3e-9	<2.4e-9	<2.4e-9	<4.3e-9	<2.6e-9	<2.6e-9	<2.1e-9	<2.4e-9	<4.9e-9	<3.9e-9
15-Sep-11	AB70276	052	1.78e-7	<9.5e-9	<2.3e-9	<2.3e-9	<2.5e-9	<2.5e-9	<4.7e-9	<3.2e-9	<2.9e-9	<2.2e-9	<2.5e-9	<5.1e-9	<4.1e-9
11-Oct-11	AB72433	054	4.9e-9	<8.5e-9	<2.2e-9	<2.3e-9	<2.3e-9	<2.3e-9	<4.4e-9	<2.7e-9	<2.6e-9	<2.3e-9	<2.3e-9	<4.8e-9	<3.9e-9
12-Oct-11	AB72544	052	8.8e-8	<7.4e-9	<1.9e-9	<2.1e-9	<2.1e-9	<2.1e-9	<3.8e-9	<2.1e-9	<2.6e-9	<2.0e-9	<2.0e-9	<4.2e-9	<3.2e-9
10-Nov-11	AB74514	052	1.25e-7	<8.8e-9	<2.0e-9	<2.2e-9	<2.1e-9	<2.1e-9	<4.2e-9	<2.8e-9	<3.3e-9	<1.9e-9	<2.1e-9	<4.5e-9	<3.6e-9
16-Nov-11	AB74913	054	4.1e-9	<9.2e-9	<2.2e-9	<2.3e-9	<2.4e-9	<2.4e-9	<4.1e-9	<3.1e-9	<2.8e-9	<2.2e-9	<2.3e-9	<4.9e-9	<3.8e-9
13-Dec-11	AB76162	054	4.5e-9	<8.0e-9	<2.1e-9	<2.2e-9	<2.3e-9	<2.3e-9	<4.1e-9	<2.4e-9	<2.5e-9	<2.2e-9	<2.1e-9	<4.5e-9	<3.7e-9
19-Dec-11	AB76375	052	9.9e-8	<7.9e-9	<2.3e-9	<2.4e-9	<2.4e-9	<2.4e-9	<4.1e-9	<2.4e-9	<2.3e-9	<2.2e-9	<2.3e-9	<4.5e-9	<3.8e-9
12-Jan-12	AB77897	054	5.6e-9	<8.9e-9	<1.9e-9	<2.1e-9	<2.2e-9	<2.2e-9	<4.2e-9	<3.4e-9	<3.3e-9	<1.9e-9	<2.2e-9	<4.5e-9	<3.5e-9

**South Texas Project
Environmental Sample Results**

<i>Date</i>	<i>Lab No</i>	<i>Station</i>	<i>H-3</i>
Water-Surface Composite pCi/l			
29-Jun-11	AB59429	046	<1.0e-6
29-Jun-11	AB59430	052	<1.0e-6
30-Aug-11	AB68709	054	<1.0e-6
30-Aug-11	AB68710	052	<1.0e-6
10-Nov-11	AB72589	054	<1.0e-6
10-Nov-11	AB72590	052	<1.0e-6
10-Nov-11	AB72592	086	<1.0e-6

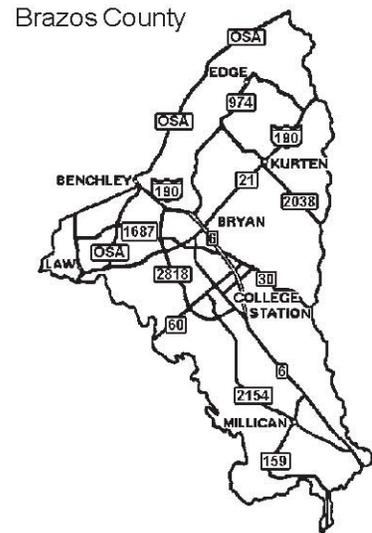
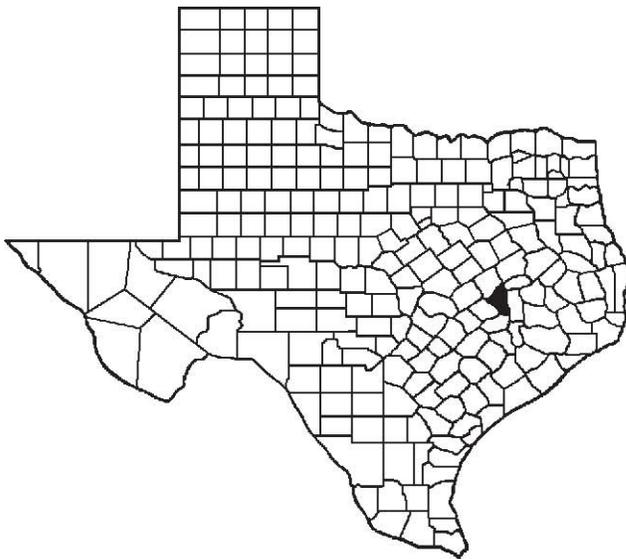
Research Reactors

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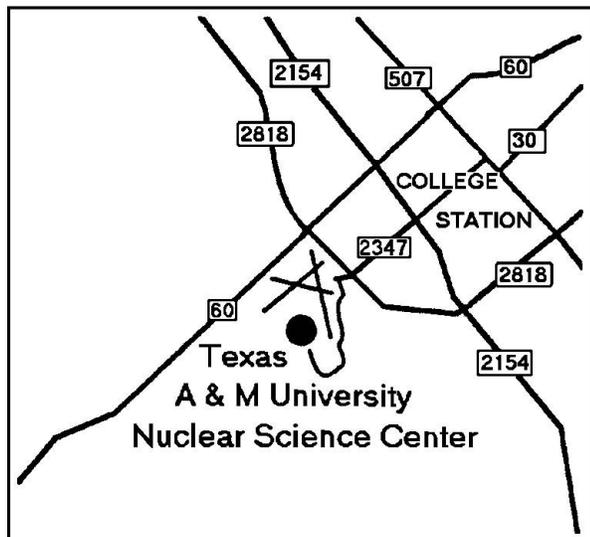
Texas A & M University Nuclear Science Center

Radiation Branch Site No. 001

Texas A&M Nuclear Science Center (NSC) is located seven miles south of downtown Bryan just south of Easterwood Airport. NSC houses a one-megawatt TRIGA (Testing, Research, Isotope Production, General Atomics) research reactor that came online in 1961. The Radiation Branch surveillance program consists of OSL monitoring.



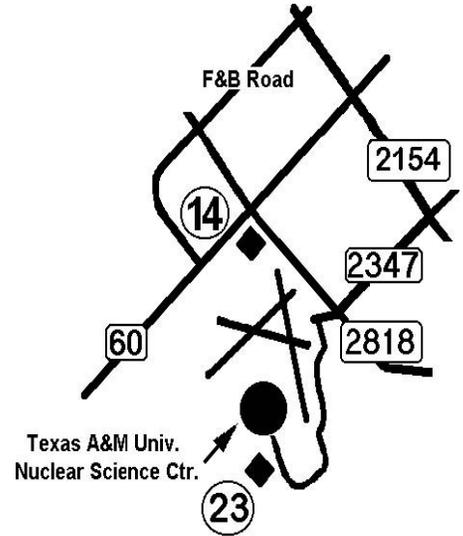
Shaded area indicates location of Brazos County



**Texas A & M University Nuclear Science Center
Monitoring Station Locations**



Homeland Security -Diagram Removed



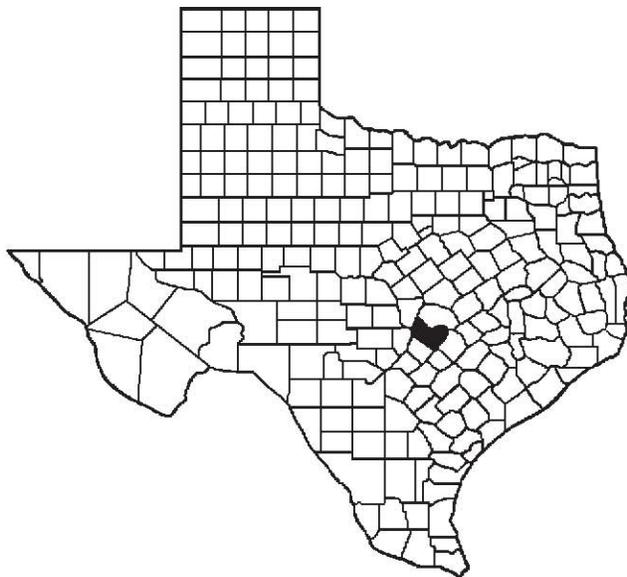
**Texas A & M Nuclear Science Center
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

	Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
NOTE:	2	22	16	20	28	86	
¹ Background is not subtracted from the data	3	19	15	19	23	76	
² If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data	4	24	17	24	28	93	
	5	23	15	20	21	79	
	10	18	14	19	18	69	
	11	19	14	18	19	70	
	14	13	12	14	15	54	Background
	18	15	17	22	20	74	
	19	25	14	18	17	74	
	20	20	14	25	34	93	
	21	15	14	23	22	74	
	22	17	13	19	20	69	
	23	15	14	19	19	67	Background
	24	16	16	21	25	78	
	25	20	14	19	24	77	
	26			19	20	39	
	27			17	17	34	
	28			18	20	38	
	29			21	22	43	

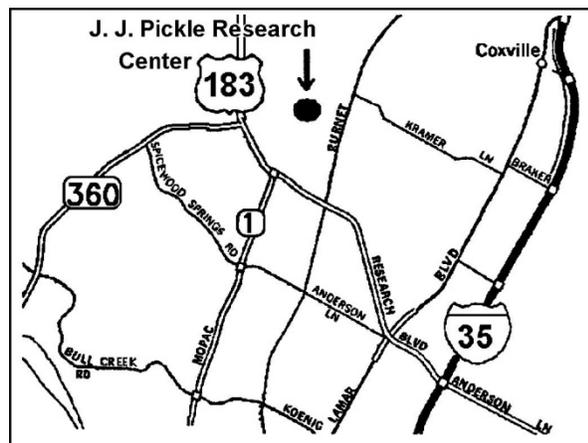
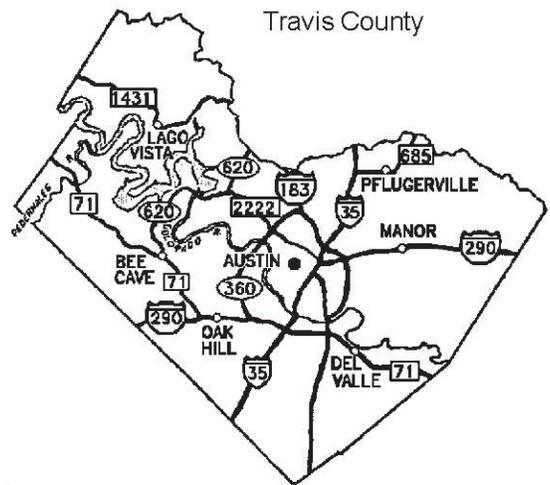
University of Texas Nuclear Engineering Teaching Laboratory

Radiation Branch Site No. 003

University of Texas Nuclear Engineering Teaching Laboratory (NETL) is located at the J. J. Pickle Research Center, approximately five miles north of the Texas Department of State Health Services main campus. NETL houses an above-ground, fixed-core 1.1 megawatt TRIGA (Testing, Research, Isotope Production, General Atomics) research reactor that came online in 1992. The Radiation Branch surveillance program consists of sampling sewage and water and OSL monitoring.



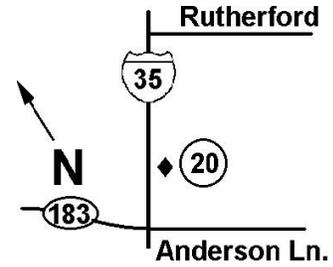
Shaded area indicates location of Travis County



**University of Texas Nuclear Engineering Teaching Laboratory
Monitoring Station Locations**

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



**University of Texas Nuclear Engineering Teaching Laboratory
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
1	15	16	18	15	64	
2	16	17	19	17	69	
3	16	17	20	16	69	
4	19	19	22	18	78	
5	16	17	23	18	74	
20	16	17	16	3	52	Background

NOTE: ¹Background is not subtracted from the data

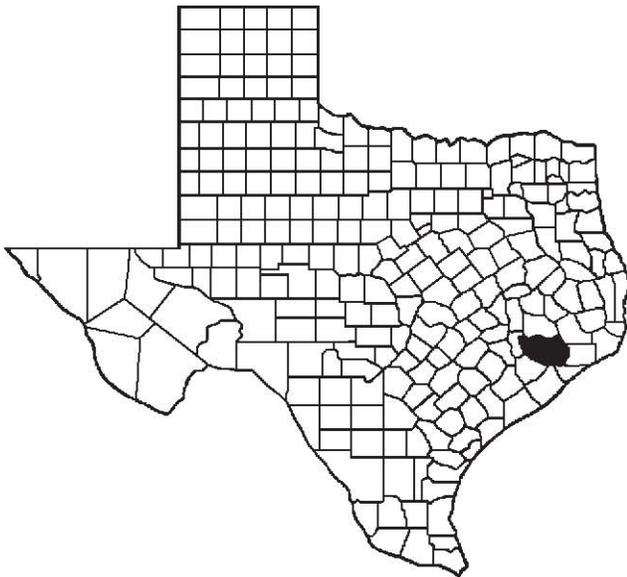
²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

Other Facilities

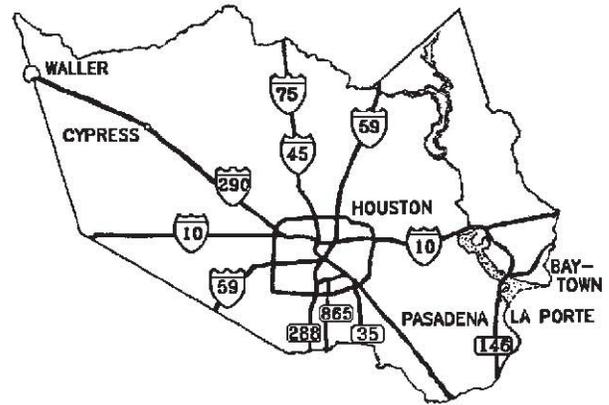
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Gammatron, Inc.
Radiation Branch Site No. 018

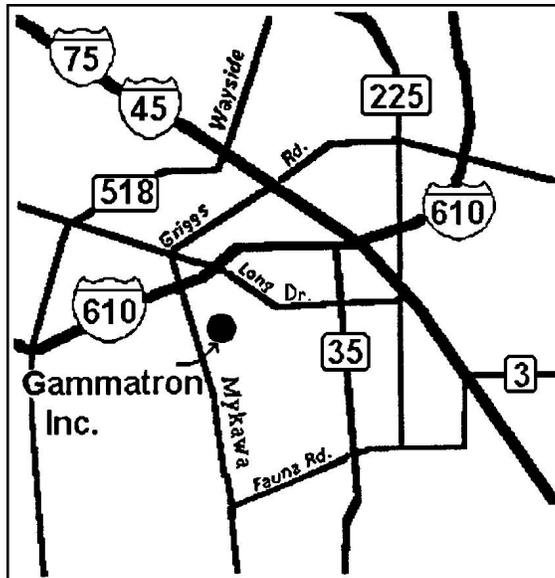
Gammatron, Inc. is a manufacturer of sealed radioactive sources. The facility is located in an industrial area of Houston approximately four miles northwest of William P. Hobby Airport. The Radiation Branch surveillance program consists of soil sampling and OSL monitoring.



Harris County



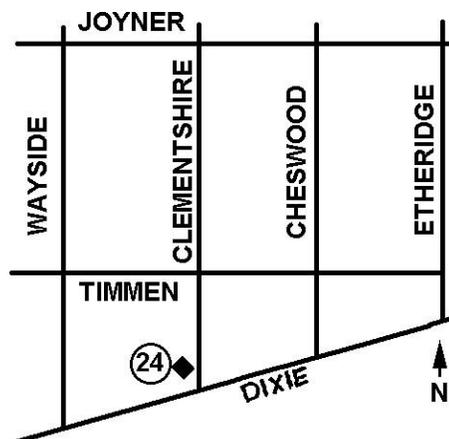
Shaded area indicates location of Harris County



**Gammatron, Inc.
Monitoring Station Locations**

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



**Gammatron, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
3	22	27	37	17	103	
5	3	275	40	20	338	
8	321	321	252	15	909	
24	1	1	1	1	4	Background
24	22	4	57	1	84	
30	275	4	49	49	377	
31	10	10	7	6	33	
34	301	301	94	320	1016	
40	54	54	11	1	120	

NOTE: ¹Background is not subtracted from the data

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

³An occupancy factor of 1/16 may be applied to this number to obtain radiation dose to members of the public.

**Gammatron, Inc.
Environmental Monitoring Results**

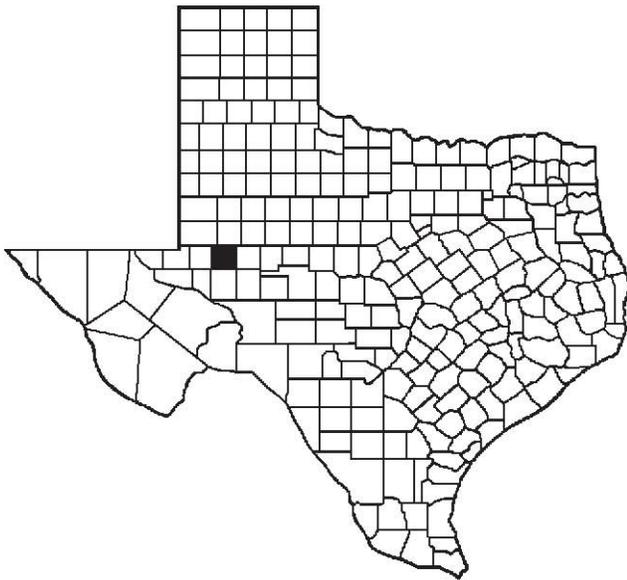
Soil uCi/g

Date	Lab No	Station	Alpha	Ra-226*	Am-241	Co-60	Cs-137	Ra-226
07-Jan-11	AB44625	031	2.7e-5	1.3e-6	<3e-7	<2e-7	<2e-7	<2.9e-6
06-Apr-11	AB52932	031	8.7e-6	9e-7	<1.8e-6	<2e-7	<3e-7	<2.9e-6

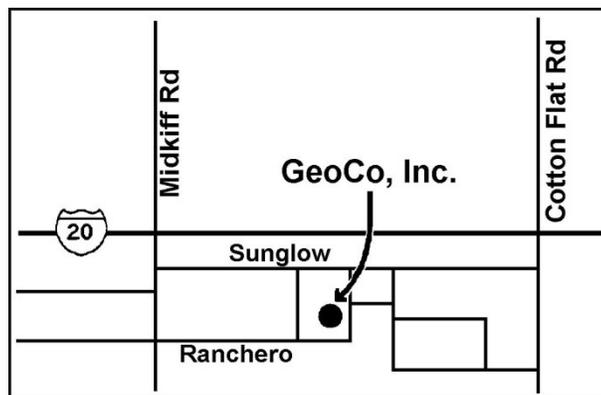
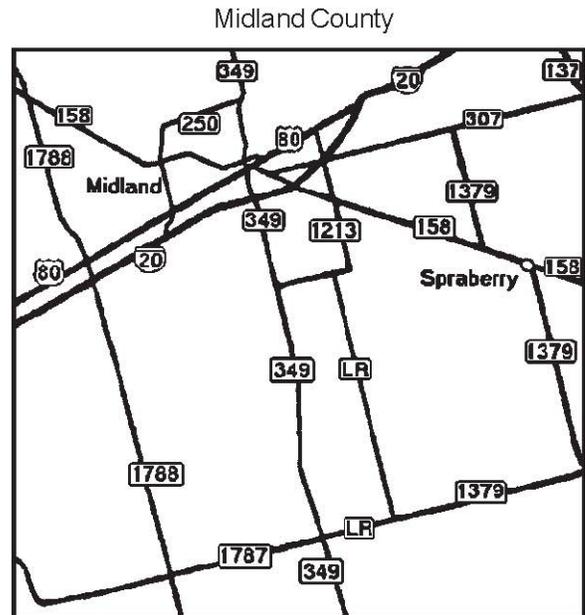
*Note: *Indicates the analysis was by alpha spectrometry, or if Ra-226, analysis by radon emanation*

GeoCo, Inc.
Radiation Branch Site No. 051

GeoCo, Inc. is a tracer studies company specializing in oil and gas wells. The facility is located in Midland approximately six miles east of Midland-Odessa International Airport. The Radiation Branch surveillance program consists of OSL monitoring.



Shaded area indicates location of Midland County



**GeoCo, Inc.
Monitoring Station Locations**

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



**GeoCo, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
1	24	25	22	17	88	
8	20	17	14	19	70	Background

NOTE: ¹Background is not subtracted from the data

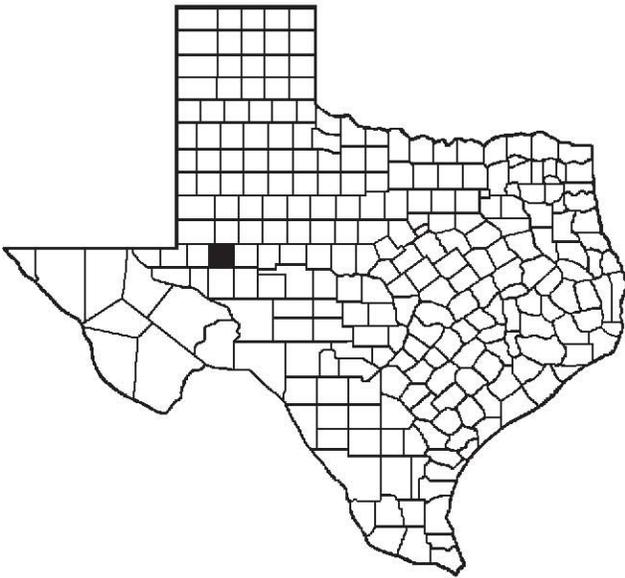
²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

³An occupancy factor of 1/10 may be applied to this number to obtain radiation dose to members of the public.

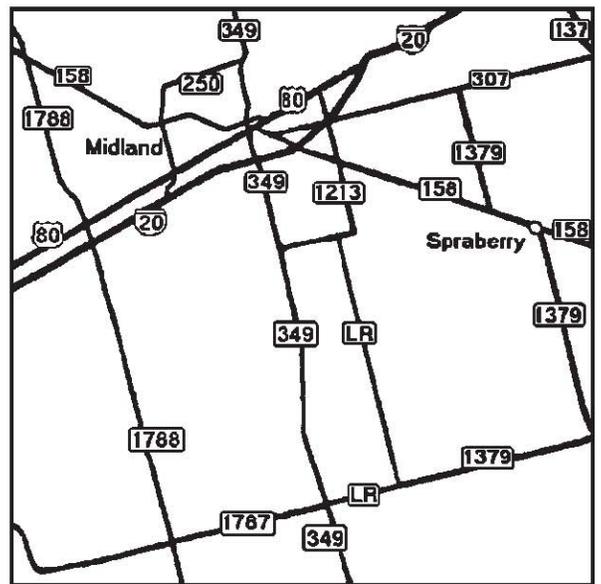
Isotech Laboratories, Inc.

Radiation Branch Site No. 008

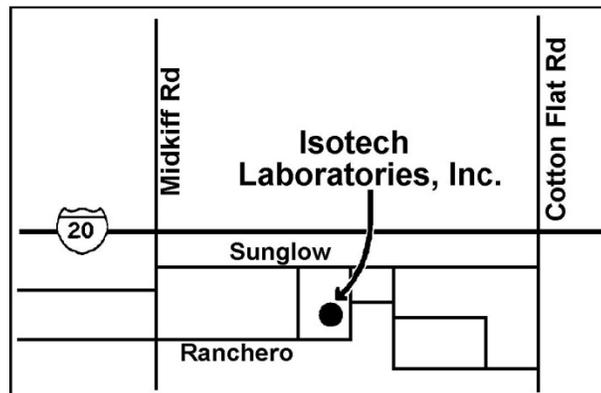
Isotech Laboratories, Inc. manufactures tracer material for the oil and gas industry, calibrates radiation detection instruments, and provides radiation safety training for well-logging and tracer services. The facility is located in Midland approximately six miles east of Midland-Odessa International Airport. The Radiation Branch surveillance program consists of OSL monitoring.



Midland County



Shaded area indicates location of Midland County



◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



Isotech Laboratories, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
 (quarterly and annual readings are in mrem)

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
1	24	25	21	20	90	
2	46	46	35	29	156	
3	32	33	29	32	126	
4	30	30	26	29	115	
6	30	24	22	27	103	
8	19	17	14	9	59	Background

NOTE: ¹Background is not subtracted from the data

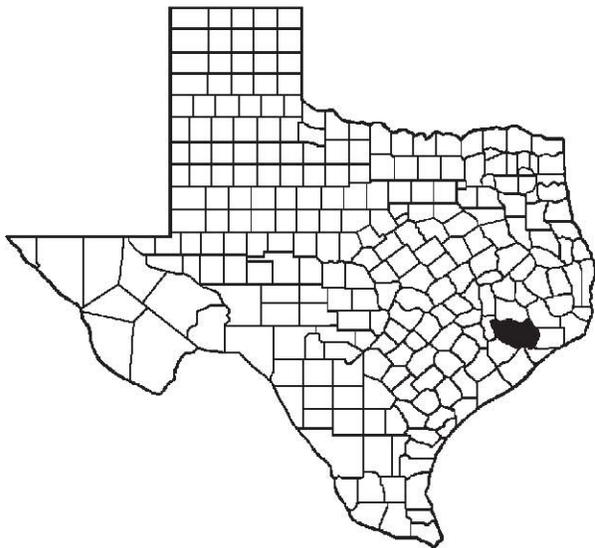
²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

³An occupancy factor of 1/4 may be applied to this number to obtain radiation dose to members of the public.

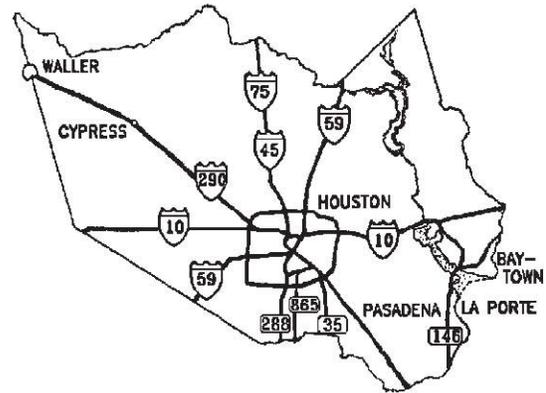
Nuclear Sources and Services, Inc.

Radiation Branch Site No. 023

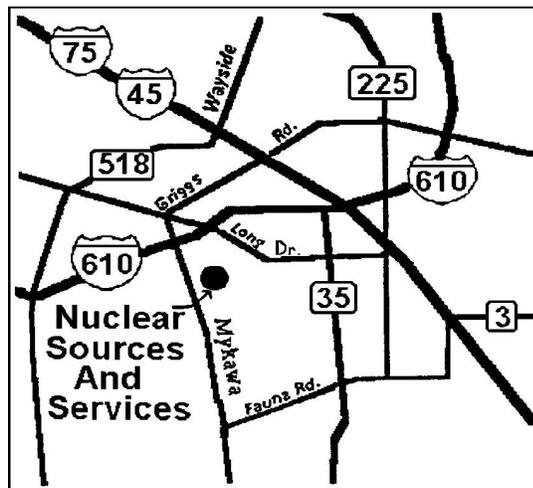
The Nuclear Sources and Services, Inc. (NSSI) facility occupies approximately five acres in a light industrial area of Southeast Houston approximately four miles northwest of William P. Hobby Airport. The primary activities of NSSI currently are waste treatment, storage, and disposal of radioactive and chemical hazardous materials. NSSI receives wastes from a variety of off-site generators both inside and outside of Texas. At the conclusion of treatment or storage, the residues are shipped to permitted off-site facilities for disposal. The Radiation Branch surveillance program consists of soil sampling and OSL monitoring.



Harris County



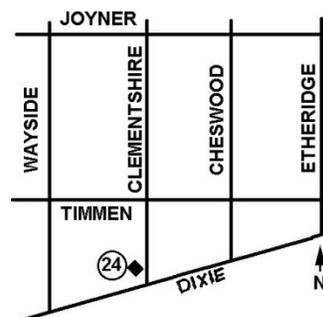
Shaded area indicates location of Harris County



**Nuclear Sources and Services, Inc.
Monitoring Station Locations**

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



**Nuclear Sources and Services, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
3	217	57	45	4	323	
4	74	24	31	49	178	
6	11	11	19	96	137	
7	15	15	303	75	408	
11	18	6	3	53	80	
12	15	16	17	53	101	
16	44	44	41	36	165	
18	5	5	1	40	51	
19	70	38	33	28	169	
20	32	33	38	27	130	
21	289	79	78	141	587	
22	20	19	22	17	78	
23	16	21	22	17	76	
24	1	1	1	0	3	Background
24	16	16	12	14	58	
25	12	12	13	2	39	
41	93	33	30	183	339	

NOTE: ¹Background is not subtracted from the data

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

³An occupancy factor of 1/16 may be applied to this number to obtain radiation dose to members of the public.

**Nuclear Sources and Services, Inc.
Environmental Soil Sample Results**

Soil uCi/g								
Date	Lab No	Station	Alpha	Ra-226	Am-241	Co-60	Cs-137	Ra-226
07-Jan-11	AB44626	026	1.8e-5	9e-7	<3e-7	5e-7	4e-7	<2.4e-6
07-Jan-11	AB44627	028	1.6e-5	9e-7	<3e-7	<1e-7	3.2e-5	<3.6e-6
06-Apr-11	AB52930	028	1.4e-5	8e-7	<3e-7	<2e-7	1.2e-6	<3.2e-6
06-Apr-11	AB52931	026	1.1e-5	8e-7	<3e-7	<2e-7	6.7e-6	<2.6e-6

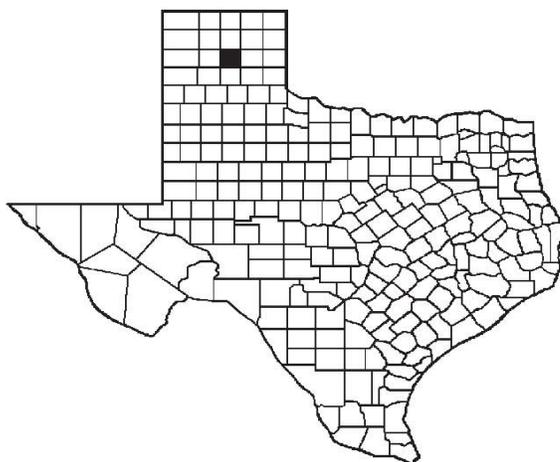
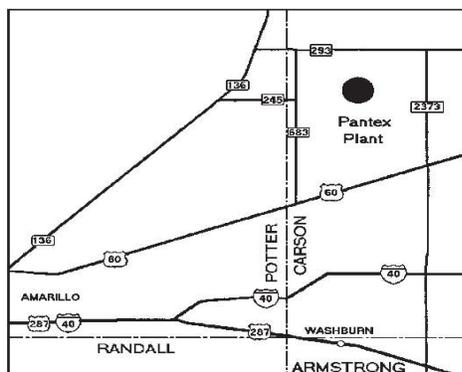
*Note: *Indicates the analysis was by alpha spectrometry, or if Ra-226, analysis by radon emanation*

Pantex

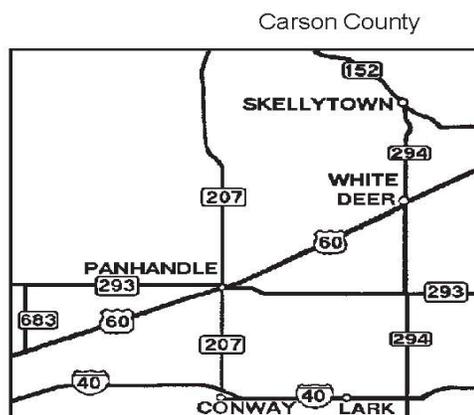
Radiation Branch Site No. 005

The Pantex plant site is located in Carson County in the Texas Panhandle, north of U.S. Highway 60. The plant is located 17 miles (27 kilometers) northeast of downtown Amarillo. It is centered on a 16,000-acre site. The Pantex facility consists of 11,703 acres of United States Department of Energy (USDOE) owned land and 5,800 acres of land leased from Texas Tech University used as a safety and security buffer zone. The buffer area is managed by Texas Tech Research Farm and is used as rangeland and farmland. An additional 1,080 acres northwest of the plant is called Pantex Lake. Pantex Lake was formally used as the receiving area for treated wastewater discharges, and is now managed by Texas Tech University. An additional 7,926 acres to the east of the plant is USDOE-owned and is used for agricultural purposes through a cooperative agreement.

The Radiation Branch surveillance program consists of OSL monitoring and sampling air, food products, sediment, soil, vegetation, and water. Analysis of samples is performed to determine the presence of any special nuclear material.

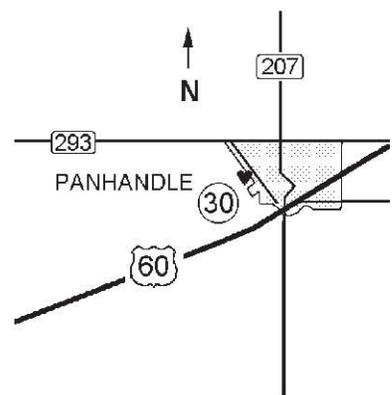
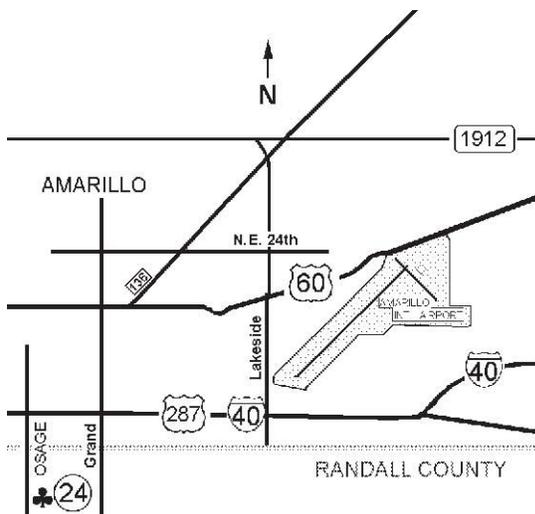
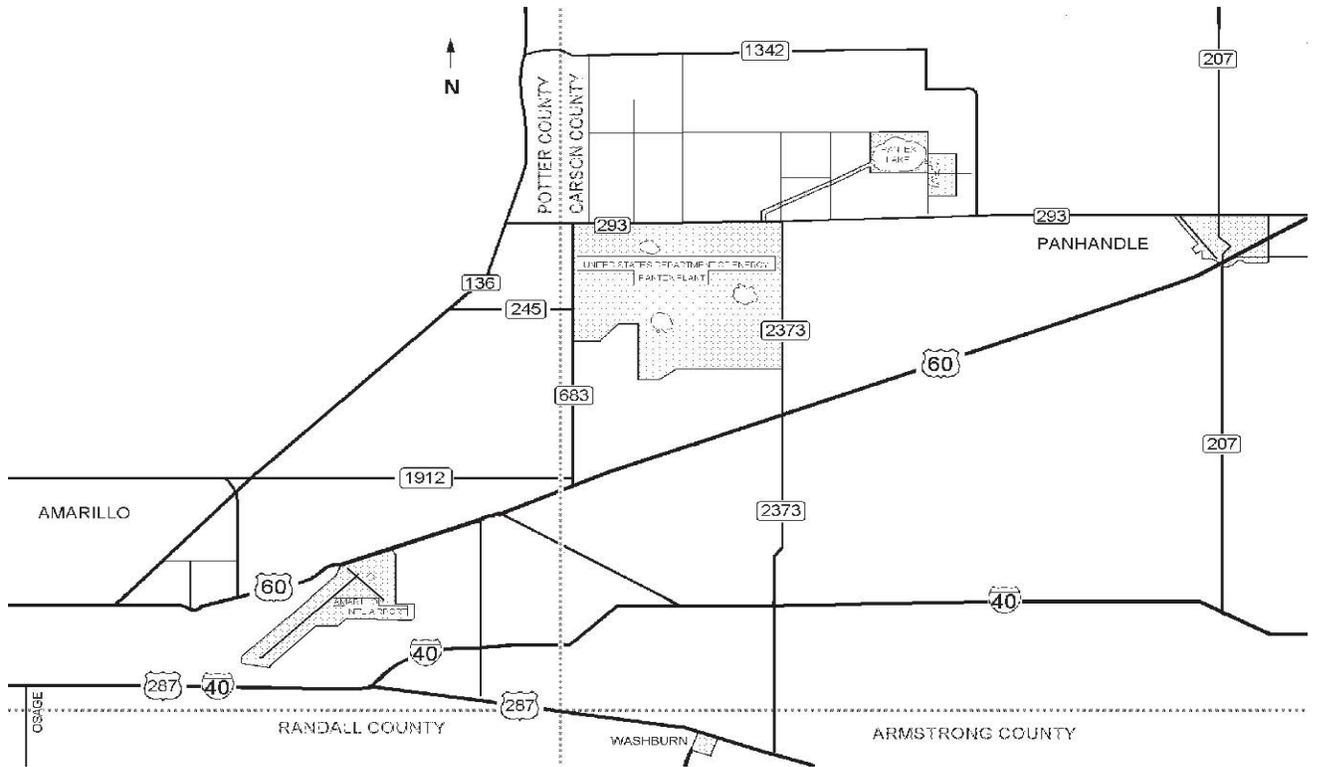


Shaded area indicates location of Carson County



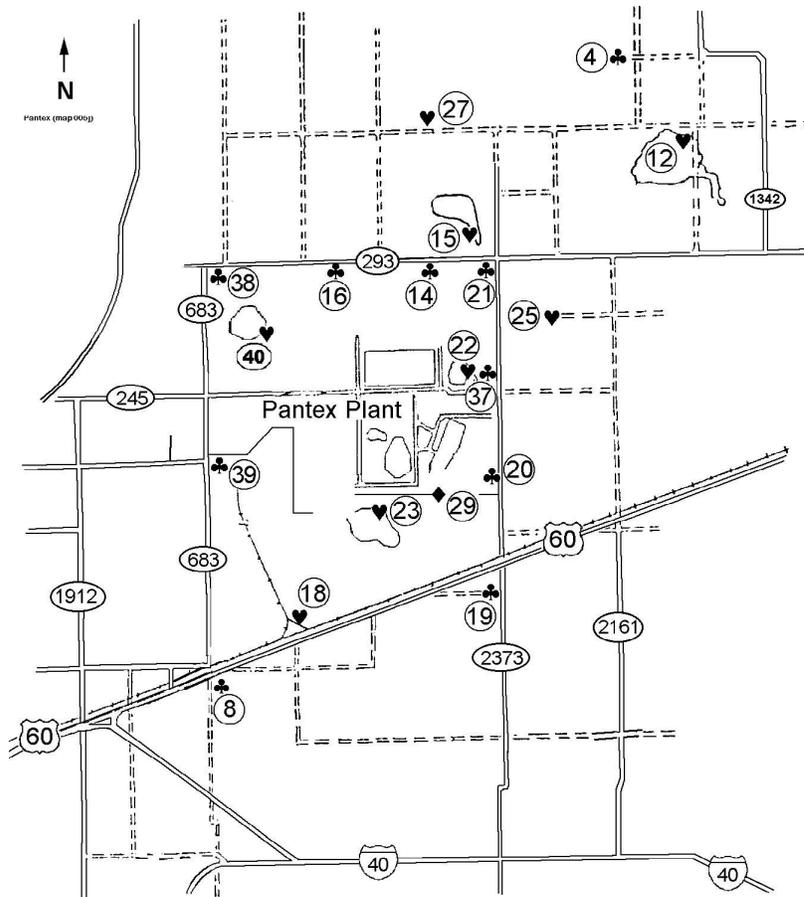
Pantex Monitoring Station Locations

◆ TLD Station
♥ Sample Station
♣ TLD & Sample Station



Pantex Monitoring Station Locations

Homeland Security -Diagram Removed



Pantex
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
4	27	23	23	40	113	
8	25	25	20	38	108	
14	25	26	21	40	112	
16	26	25	23	40	114	
19	25	26	24	41	116	
20	26	26	22	40	114	
21	24	24	20	38	106	
24	22	25	18	36	101	Background
29	25	27	21	39	112	
37	27	27	22	40	116	
38	26	25	19	40	110	
39	24	26	21	39	110	

NOTE: ¹Background is not subtracted from the data

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

Pantex
Environmental Air Sample Results

Air Sample uCi/ml

Date	Lab No	Station	Pu-239	U-234	U-235	U-238	Ra-226
06-Jan-11	AB52958	105	<6e-17	<5.0e-16	<5.0e-16	<5.0e-16	<1.4e-14
27-Jan-11	AB52959	104	<7e-17	<6.0e-16	<6.0e-16	<6.0e-16	<9.3e-15
24-Feb-11	AB52960	104	<7e-17	<6.1e-16	<6.1e-16	<6.1e-16	<1.6e-14
03-Mar-11	AB52961	104	<6e-17	<5.8e-16	<5.8e-16	<5.8e-16	<9.1e-15
15-Mar-11	AB52962	105	<6e-17	<5.2e-16	<5.2e-16	<5.2e-16	<7.8e-15
07-Apr-11	AB64485	104	<6e-17	<5.1e-16	<5.1e-16	<5.1e-16	<1.4e-14
20-Apr-11	AB64484	104	<6e-17	<5.4e-16	<5.4e-16	<5.4e-16	<1.4e-14
17-May-11	AB64486	105	<5e-17	<4.9e-16	<4.9e-16	<4.9e-16	<7.6e-15
20-May-11	AB64488	105	<5e-17	<4.9e-16	<4.9e-16	<4.9e-16	<7.8e-15
12-Jun-11	AB73996	105	<6e-17	<5.3e-16	<5.3e-16	<5.3e-16	<1.0e-14
14-Jun-11	AB64487	105	<6e-17	<5.2e-16	<5.2e-16	<5.2e-16	<8.4e-14
28-Jun-11	AB73992	104	<7e-17	<6.2e-16	<6.2e-16	<6.2e-16	<1.7e-14
08-Jul-11	AB73993	105	<6e-17	<5.4e-16	<5.4e-16	<5.4e-16	<1.0e-14
19-Jul-11	AB73994	105	<6e-17	<5.6e-16	<5.6e-16	<5.6e-16	<1.9e-14
09-Aug-11	AB73995	105	<6e-17	<5.5e-16	<5.5e-16	<5.5e-16	<9e-15
17-Aug-11	AB73997	105	<6e-17	<5.5e-16	<5.5e-16	<5.5e-16	<1.5e-14
16-Sep-11	AB73998	105	<6e-17	<5.2e-16	<5.2e-16	<5.2e-16	<1.3e-14
23-Sep-11	AB78460	105	<6e-17	<5.2e-16	<5.2e-16	<5.2e-16	<1.9e-14
15-Oct-11	AB78458	104	<6e-17	<5.9e-16	<5.9e-16	<5.9e-16	<2.1e-14
15-Dec-11	AB78461	105	<6e-17	<5.8e-16	<5.8e-16	<5.8e-16	<1.34e-13
29-Dec-11	AB89962	104	<6e-17	<5.8e-16	<5.8e-16	<5.8e-16	<1.4e-14
30-Nov-12	AB78459	104	<6e-17	<5.8e-16	<5.8e-16	<5.8e-16	<1.4e-14

**Pantex
Environmental Sample Results**

Date	Lab No	Station	Pu-239	U-234	U-235	U-238	H-3	Ra-226	U-238
Food Product uCi/g									
19-Apr-11	AB54214	025	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<6e-7	<6e-7
Sediment uCi/g									
25-Jan-11	AB46460	022	<1e-7	1.1e-6	<1.0e-6	<1.0e-6	<1.0e-6	<2.9e-6	<2.5e-6
19-Aug-11	AB68321	023	<1e-7	1.0e-6	<1.0e-6	<1.0e-6		<2.5e-6	<2.2e-6
07-Nov-11	AB74256	015	<1e-7	<1.0e-6	<1.0e-6	1.2e-6		<3.0e-6	<2.8e-6
Soil uCi/g									
25-Jan-11	AB46450	018	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<2.3e-6	<1.5e-6
25-Jan-11	AB46451	014	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<3.2e-6	<2.9e-6
25-Jan-11	AB46452	020	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		1.5e-6	<1.8e-6
25-Jan-11	AB46453	037	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<2.8e-6	<2.3e-6
25-Jan-11	AB46454	039	<1e-7	<1.0e-6	<1.0e-6	1.0e-6		<2.9e-6	<1.8e-6
25-Jan-11	AB46455	014	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	Not done	<9e-7	<6e-7
05-Apr-11	AB54209	004	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<9e-7	<6e-7
19-Apr-11	AB54202	004	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<2.3e-6	<1.4e-6
19-Apr-11	AB54203	008	<1e-7	1.0e-6	<1.0e-6	1.2e-6		<2.6e-6	<2.4e-6
19-Apr-11	AB54204	016	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<2.6e-6	<2.2e-6
19-Apr-11	AB54205	019	<1e-7	1.1e-6	<1.0e-6	1.0e-6		<2.9e-6	<1.8e-6
19-Apr-11	AB54206	021	<1e-7	<1.0e-6	<1.0e-6	1.0e-6		<2.3e-6	<1.4e-6
19-Apr-11	AB54207	038	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<2.7e-6	<2.5e-6
19-Apr-11	AB54208	040	<1e-7	<1.0e-6	<1.0e-6	1.2e-6	Not done	<2.9e-6	<1.8e-6
19-Aug-11	AB68311	014	<1e-7	1.1e-6	<1.0e-6	<1.0e-6		<2.6e-6	<1.7e-6
19-Aug-11	AB68312	018	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<2.4e-6	<2.1e-6
19-Aug-11	AB68313	020	<1e-7	1.2e-6	<1.0e-6	<1.0e-6		<2.5e-6	<1.6e-6
19-Aug-11	AB68314	037	<1e-7	<1.0e-6	<1.0e-6	1.0e-6		<2.6e-6	<2.2e-6
19-Aug-11	AB68315	039	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<2.8e-6	<1.7e-6
07-Nov-11	AB74244	004	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<3.0e-6	<1.9e-6
07-Nov-11	AB74245	008	<1e-7	<1.0e-6	<1.0e-6	1.2e-6		<2.7e-6	<1.7e-6
07-Nov-11	AB74246	016	<1e-7	1.1e-6	<1.0e-6	<1.0e-6		<2.9e-6	<2.4e-6
07-Nov-11	AB74247	019	<1e-7	<1.0e-6	<1.0e-6	1.0e-6		<2.5e-6	<2.3e-6
07-Nov-11	AB74248	021	<1e-7	<1.0e-6	<1.0e-6	1.0e-6		2.8e-6	<1.8e-6
07-Nov-11	AB74249	038	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<3.0e-6	<1.8e-6
Vegetation uCi/g									
25-Jan-11	AB46456	018	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	Not done	<8e-7	<8e-7
25-Jan-11	AB46457	020	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	Not done	<7e-7	<7e-7
25-Jan-11	AB46458	037	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	Not done	<1.2e-6	<8e-7
25-Jan-11	AB46459	039	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	Not done	<6e-7	<6e-7
19-Apr-11	AB54210	008	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	Not done	<6e-7	<6e-7
19-Apr-11	AB54211	016	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<5e-7	<5e-7
19-Apr-11	AB54212	019	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<8e-7	<6e-7
19-Apr-11	AB54213	021	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<8e-7	<6e-7
19-Apr-11	AB54215	038	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<5e-7	<5e-7
19-Aug-11	AB68316	014	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<7e-7
19-Aug-11	AB68317	018	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<5e-7	<5e-7
19-Aug-11	AB68318	020	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<5e-7	<6e-7
19-Aug-11	AB68319	037	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<7e-7	<5e-7
19-Aug-11	AB68320	039	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<6e-7	<6e-7

**Pantex
Environmental Sample Results**

Date	Lab No	Station	Pu-239*	U-234*	U-235*	U-238*	H-3**	Ra-226	U-238
Vegetation uCi/g									
07-Nov-11	AB74250	004	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<7e-7	<6e-7
07-Nov-11	AB74252	016	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.2e-6	<8e-7
07-Nov-11	AB74253	019	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<6e-7	<6e-7
07-Nov-11	AB74254	021	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<8e-7	<6e-7
07-Nov-11	AB74255	038	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<6e-7	<6e-7
Water-Drinking uCi/ml									
25-Jan-11	AB46463	030	<1e-10	5.5e-9	<1.0e-9	2.4e-9	<1.0e-6	<4.8e-8	<3.5e-8
19-Apr-11	AB54216	030	<1e-10	4.6e-9	<1.0e-9	2.4e-9	<1.0e-6	<4.7e-8	<3.5e-8
19-Aug-11	AB68324	030	<1e-10	5.6e-9	<1.0e-9	2.1e-9	<1.0e-6	<4.8e-8	<3.5e-8
07-Nov-11	AB74259	030	<1e-10	1.2e-8	<1.0e-9	6.1e-9	<1.0e-6	<3.9e-8	<4.0e-8
Water-Surface uCi/ml									
25-Jan-11	AB46461	024	<1e-10	5.2e-9	<1.0e-9	2.8e-9	<1.0e-6	<4.8e-8	<3.5e-8
25-Jan-11	AB46464	022	<1e-10	<1.0e-9	<1.0e-9	<1.0e-9	<1.0e-6	<3.8e-8	<4.0e-8
25-Jan-11	AB46465	040	<1e-10	1.5e-9	<1.0e-9	1.9e-9	<1.0e-6	<4.9e-8	<3.6e-8
25-Jan-11	AB46466	023	<1e-10	<1.0e-9	<1.0e-9	<1.0e-9	<1.0e-6	<3.8e-8	<4.1e-8
19-Apr-11	AB54218	024	<1e-10	4.7e-9	<1.0e-9	2.1e-9	<1.0e-6	<4.9e-8	<3.5e-8
19-Aug-11	AB68322	024	<1e-10	4.9e-9	<1.0e-9	2.7e-9	<1.0e-6	<3.8e-8	<4.1e-8
07-Nov-11	AB74257	024	<1e-10	4.7e-9	<1.0e-9	1.6e-9	<1.0e-6	<4.8e-8	<3.5e-8
Water-Ground uCi/ml									
25-Jan-11	AB46462	027	<1e-10	4.1e-9	<1.0e-9	2.0e-9	<1.0e-6	<4.8e-8	<3.5e-8
19-Apr-11	AB54217	027	<1e-10	4.0e-9	<1.0e-9	2.1e-9	<1.0e-6	<3.7e-8	<4.1e-8
19-Aug-11	AB68323	027	<1e-10	4.8e-9	<1.0e-9	1.7e-9	<1.0e-6	<3.7e-8	<3.9e-8
07-Nov-11	AB74258	027	<1e-10	3.9e-9	<1.0e-9	1.6e-9	<1.0e-6	<3.9e-8	<4.1e-8

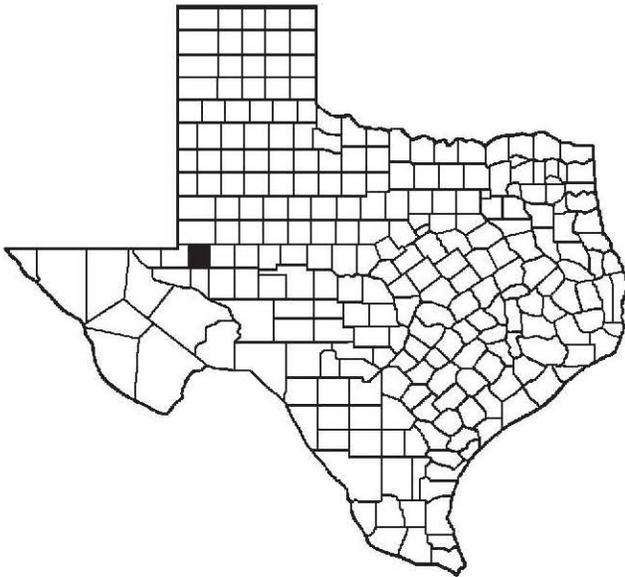
NOTE:*Indicates the analysis was by alpha spectrometry, or Ra-226, analysis by radon emanation.

**Indicates the tritium (H-3) analysis for food product, sediment, and vegetation is reported in uCi/ml.

Radiation Technology, Inc.

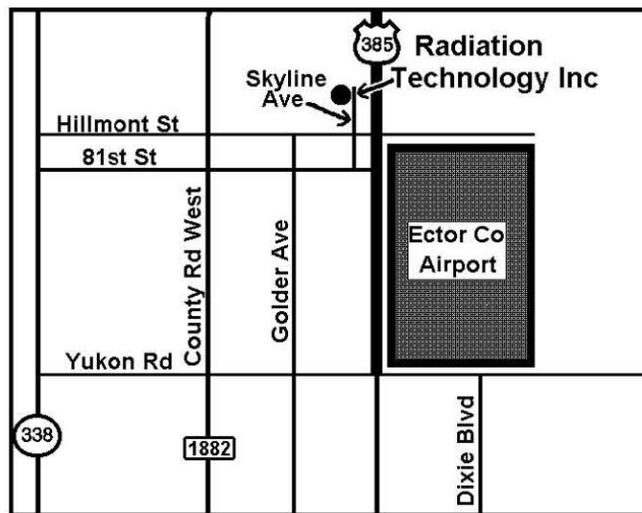
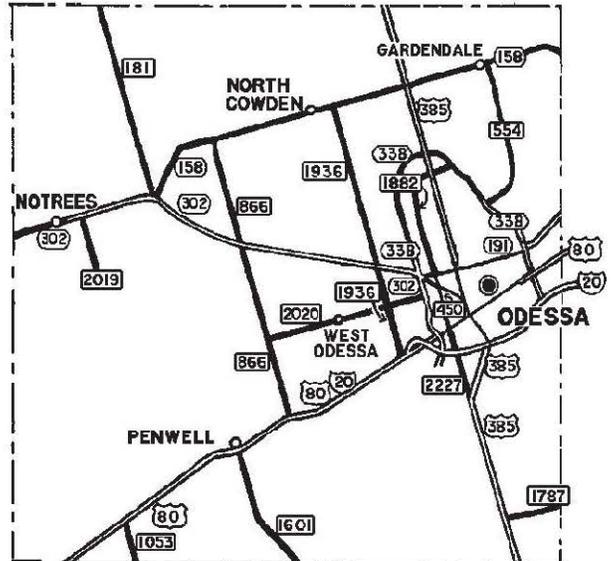
Radiation Branch Site No. 050

Radiation Technology, Inc. (RTI), located six miles north of downtown Odessa, provides installation, repair, and maintenance of nuclear gauging devices and services for loading and unloading radioactive sources in nuclear gauges. The Radiation Branch surveillance program consists of OSL monitoring.



Shaded area indicates location of Ector County

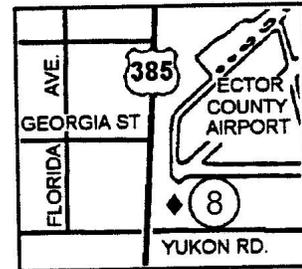
Ector County



**Radiation Technology, Inc.
Monitoring Station Locations**

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



**Radiation Technology, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
1	6	6	1	9	22	
2	64	84	98	327	573	
3	33	33	23	66	155	
4	1	1	5	14	21	
8	5	5	1	9	20	Background

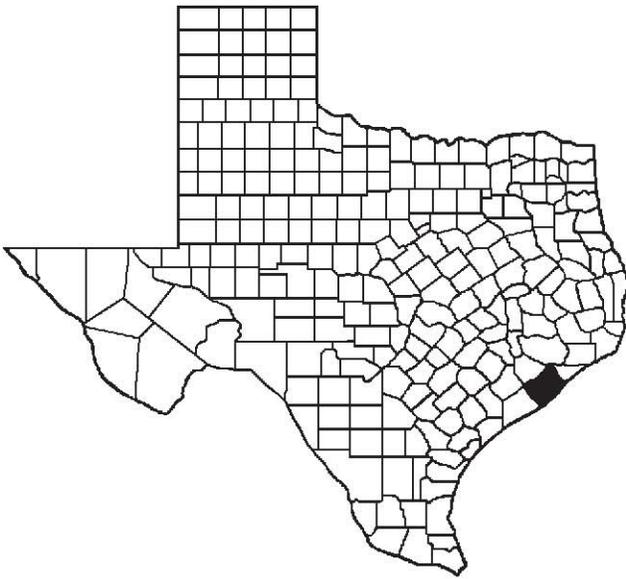
NOTE: ¹Background is not subtracted from the data

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

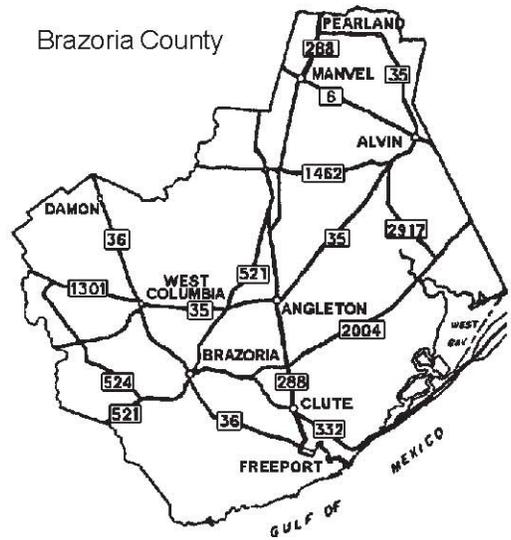
³An occupancy factor of 1/16 may be applied to this number to obtain radiation dose to members of the public.

Rhodia, Inc.
Radiation Branch Site No. 026

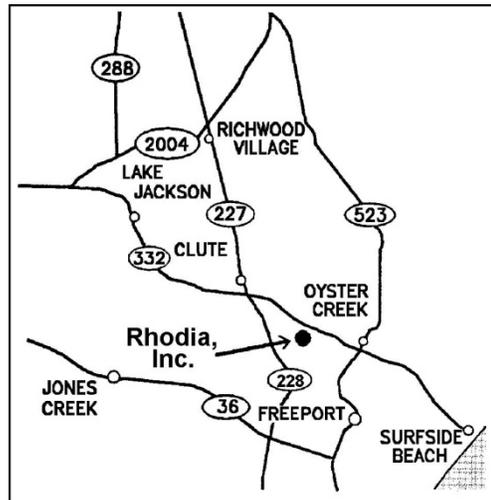
Rhodia, Inc. is an international specialty chemicals manufacturer. Rhodia's Freeport facility, located approximately 55 miles south of Houston, uses material containing uranium and thorium. The Radiation Branch surveillance program consists of OSL monitoring.



Brazoria County



Shaded area indicates location of Brazoria County



**Rhodia, Inc.
Monitoring Station Locations**

◆ TLD Station	♥ Sample Station	♣ TLD & Sample Station
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Homeland Security -Diagram Removed

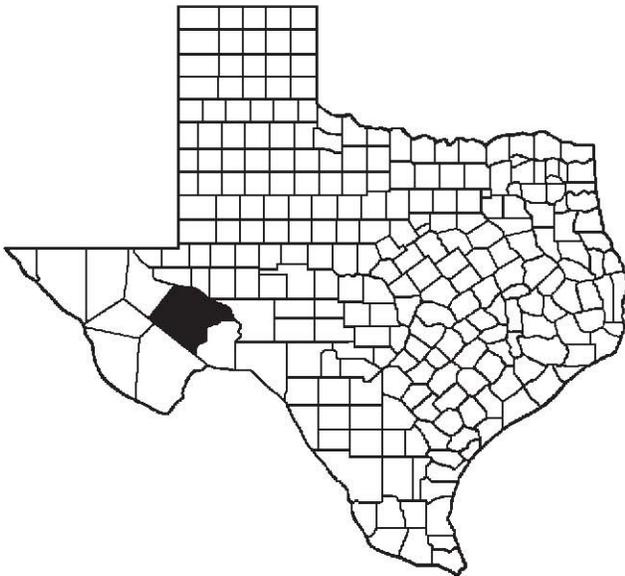
**Rhodia, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
1	19	14	12	14	59	
2	16	14	12	16	58	
4	22	--	19	21	62	OSL Missing ²
5	44	46	36	45	171	
6	36	39	30	36	141	
16	18	15	13	16	62	Background

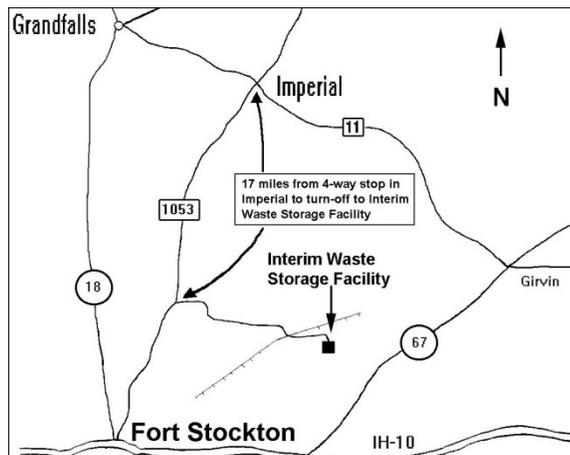
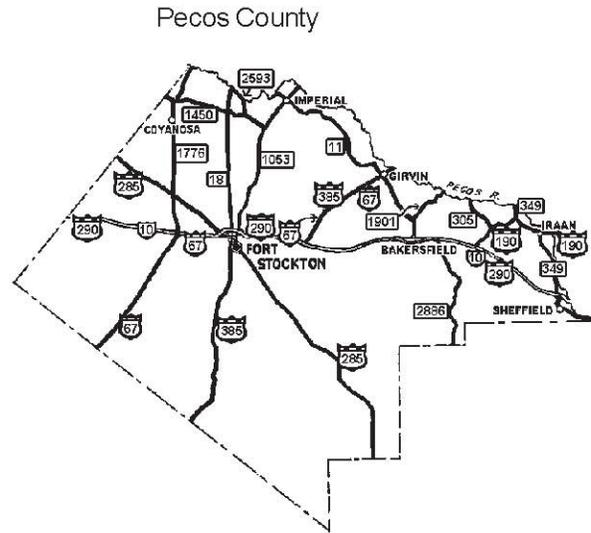
University of Texas Systems Interim Waste Storage Facility

Radiation Branch Site No. 042

University of Texas Systems Interim Waste Storage Facility, located in Pecos County, provides temporary storage for low-level radioactive waste from several University of Texas campuses throughout Texas. The Radiation Branch surveillance program consists of OSL monitoring.



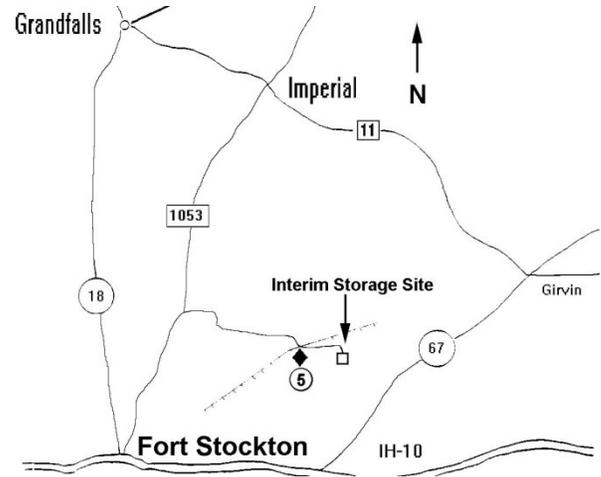
Shaded area indicates location of Pecos County



**University of Texas Systems Interim Waste Storage Facility
Monitoring Station Locations**

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



**University of Texas Systems Interim Waste Storage Facility
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)**

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
1	26	22	30	30	108	
2	23	19	26	27	95	
3	22	19	26	26	93	
4	21	19	25	26	91	
5	23	21	26	30	100	Background

NOTE: ¹Background is not subtracted from the data

²If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

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Appendices

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Department of Energy Quality Assessment Program Results

QAP 0403

QAP 60 Results by Laboratory

Lab: TX Texas Dept. of Health/Laboratories, Austin

No. Test	Radionuclide	Reported Value	Reported Error	EML Value	EML Error	Reported EML	Evaluation
Matrix: AI Air Filter Bq/filter							
1	AM241	0.115	0.01	0.1045	0.0025	1.100	A
1	CO60	37.5	0.4	35.4	0.85	1.059	A
1	CS134	16.7	0.2	18.2	0.402	0.918	A
1	CS137	28.9	0.5	26.4	0.86	1.095	A
1	Gross Alpha	1.19	0.08	1.2	0.12	0.992	A
1	Gross Beta	2.89	0.13	2.85	0.28	1.014	A
1	PU238	0.041	0.002	0.0405	0.0027	1.012	A
1	PU239	0.164	0.005	0.1644	0.0112	0.998	A
1	U234	0.092	0.005	0.0858	0.0008	1.072	A
1	U238	0.09	0.005	0.085	0.0029	1.059	A
Matrix: SO Soil Bq/kg							
1	AC228	52.4	1.8	49.0	1.96	1.069	A
1	AM241	13.9	0.9	13.0	0.43	1.069	A
1	BI212	51.2	8.2	50.43	4.61	1.015	A
1	BI214	52.3	1.9	58.4	2.2	0.896	A
1	CS137	1359.0	30.0	1323.0	66.17	1.027	A
1	K40	564.0	17.0	539.0	29.11	1.046	A
1	PB212	50.1	1.9	47.73	2.53	1.050	A
1	PB214	55.6	2.0	61.0	2.38	0.911	A
1	PU238	0.888	0.185	0.82	0.05	1.083	A
1	PU239	22.4	1.2	22.82	0.56	0.982	A
1	SR90	52.5	9.4	51.0 *	5.9	1.029	A
1	TH234	71.1	8.9	84.0	5.96	0.846	A
1	U234	84.6	2.7	87.22	1.97	0.970	A
1	U238	90.6	2.7	89.73	4.22	1.010	A
Matrix: VE Vegetation Bq/kg							
1	AM241	5.33	0.56	4.93	0.29	1.081	A
1	CO60	17.7	0.9	14.47	0.64	1.223	A
1	CS137	659.0	11.0	584.67	29.23	1.127	A
1	K40	837.0	25.0	720.0	37.92	1.163	A
1	PU238	0.592	0.159	0.455	0.0485	1.301	A
1	PU239	6.56	0.53	6.81	0.28	0.963	A
1	SR90	688.0	22.0	734.0 *	82.0	0.937	A
Matrix: WA Water Bq/L							
1	AM241	1.22	0.11	1.31	0.04	0.931	A
1	CO60	162.0	1.0	163.2	5.9	0.993	A
1	CS137	52.2	0.9	51.95	2.7	1.005	A
1	Gross Alpha	320.0	28.0	326.0	32.0	0.982	A
1	Gross Beta	1217.0	60.0	1170.0	117.0	1.040	A
1	H3	255.0	18.0	186.6	3.3	1.367	W
1	PU238	1.03	0.06	1.1	0.03	0.936	A
1	PU239	2.86	0.14	3.08	0.1	0.929	A
1	SR90	5.68	0.67	4.76 *	0.5	1.193	W
1	U234	2.26	0.09	2.28	0.02	0.991	A
1	U238	2.25	0.09	2.25	0.06	1.000	A

Values for elemental uranium are reported in µg/filter, g, or mL.

pCi/g or mL = Bq x 0.027

Evaluation: A=Acceptable, W=Acceptable with Warning, N=Not Acceptable

If the evaluation system is not appropriate for the types of analyses performed in your lab, apply site specific evaluation.

* Grand mean average used in lieu of experimentally determined EML value

Department of Homeland Security
Environmental Measurements Laboratory
201 Varick Street
New York, NY 10014-7447

March 1, 2004

To: Participants in Quality Assessment Program (QAP)
From: Mitchell D. Erickson, Laboratory Director

TERMINATION OF THE QUALITY ASSESSMENT PROGRAM

The Department of Energy's (DOE) Quality Assessment Program (QAP), managed by the Environmental Measurements Laboratory (EML), will be terminated after we issue the report for this current performance sample distribution (QAP 60).

The Program was established in 1976 to test the quality of the environmental radiological analysis being reported to DOE by its contractors for site cleanup and regulatory compliance. Since the Program's inception, DOE/EML successfully prepared, analyzed, and distributed thousands of performance samples to DOE contractors and other participants in the program. DOE/EML then collected, compiled, assessed, and reported the resulting analytical data, which was used by DOE program managers to select qualified contractors, monitor contractors' performance, and assure data quality. QAP data show continuous improvement in radiochemical analyses as labs gained proficiency and EML's QA scientists encouraged better performance through consultation, feedback, and new methods. Detailed information on QAP, including full reports, is available at <http://www.eml.doe.gov/qap/>.

EML is proud to have successfully managed the Program for 27 years on behalf of DOE; helping the Nation by ensuring that the quality of the radiological analysis from DOE contractors was demonstrated. We would also like to take this opportunity to thank all those individuals and organizations that have helped and supported us over the years.

EML transferred to the Science and Technology (S&T) Directorate of the Department of Homeland Security (DHS) on March 1, 2003. As we continue to respond to the challenges of our new mission, we need to redirect our proficiency testing (PT) activities to reflect our new mission. We will keep you informed as these new PT activities develop.

Texas Department of State Health Services Laboratory Detection Limits

**Laboratory Services Section
Environmental Sciences Branch**

Each laboratory procedure is performed under unique analysis conditions. Variations occur in volumes, counting efficiencies, detector backgrounds, count times, decay factors, chemical recoveries, and other analysis parameters which affect the sensitivity of the measurement. The detection limits listed in the following tables were derived using standard analysis conditions and are routinely achievable on normal samples. If greater sensitivity is required, it is usually possible to adjust detection limits by changing one or more of these parameters.

**Detection Limits for Gamma Spectroscopy
Sample Type**

Isotope	Soil - Sediment		Air Filter		Water - Milk		Vegetation - Fish	
	µCi/g	pCi/kg	µCi/filter	pCi/filter	µCi/ml	pCi/l	µCi/g	pCi/kg
Ac-228	2.0E-07	2.0E+02	2.0E-05	2.0E+01	2.0E-08	2.0E+01	1.0E-07	1.0E+02
Ag-110m	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Am-241	1.0E-07	1.0E+02	5.0E-06	5.0E+00	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Ba-140	4.0E-07	4.0E+02	2.0E-05	2.0E+01	2.0E-08	2.0E+01	1.0E-07	1.0E+02
Be-7	1.0E-06	1.0E+03	3.0E-05	3.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
Bi-212	5.0E-07	5.0E+02	3.0E-05	3.0E+01	1.0E-07	1.0E+02	1.0E-07	1.0E+02
Bi-214	2.0E-07	2.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Co-57	1.0E-07	1.0E+02	2.0E-06	2.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Co-58	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Co-60	1.0E-07	1.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Cr-51	1.0E-06	1.0E+03	3.0E-05	3.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
Cs-134	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Cs-137	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Fe-59	1.0E-07	1.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
I-125	1.0E-06	1.0E+03	1.0E-05	1.0E+01	2.0E-08	2.0E+01	1.0E-07	1.0E+02
I-131*	1.0E-07	1.0E+02	5.0E-06	5.0E+00	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Ir-192	1.0E-07	1.0E+02	5.0E-06	5.0E+00	1.0E-08	1.0E+01	1.0E-07	1.0E+02
K-40	2.0E-06	2.0E+03	1.0E-04	1.0E+02	4.0E-08	4.0E+01	1.0E-07	1.0E+02
La-140	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Mn-54	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Nb-95	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Pb-210	4.0E-07	4.0E+02	2.0E-05	2.0E+01	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Pb-212	2.0E-07	2.0E+02	1.0E-05	1.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
Pb-214	2.0E-07	2.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Ra-226	2.0E-06	2.0E+03	1.0E-04	1.0E+02	1.0E-07	1.0E+02	2.0E-07	2.0E+02
Sb-124	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Sc-46	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Th-230	1.0E-05	1.0E+04	3.0E-04	3.0E+02	1.0E-06	1.0E+03	2.0E-06	2.0E+03
Th-234	1.0E-06	1.0E+03	4.0E-05	4.0E+01	1.0E-07	1.0E+02	2.0E-07	2.0E+02
Tl-208	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
U-235	4.0E-07	4.0E+02	2.0E-05	2.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
U-238	1.0E-06	1.0E+03	3.0E-05	3.0E+01	6.0E-08	6.0E+01	2.0E-07	2.0E+02
Zn-65	2.0E-07	2.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Zr-95	1.0E-07	1.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02

*Air iodine can be determined by using cartridges. Detection limits are 2.0E-14µCi/ml or 2.0E-02 pCi/m³.

Laboratory Services Section
Environmental Sciences Branch

Detection Limits for Chemical Analysis Procedures
Sample Type

Isotope	Soil - Sediment		Air Filter		Water - Milk		Vegetation - Fish	
	µCi/g	pCi/kg	µCi/filter	pCi/filter	µCi/ml	pCi/l	µCi/g	pCi/kg
Alpha	6.1E-06	6.1E+03	7.0E-07	7.0E-01	3.3E-09	3.3E+00	3.3E-06	3.3E+03
Beta	1.2E-05	1.2E+04	1.3E-06	1.3E+00	6.6E-09	6.6E+00	6.6E-06	6.6E+03
C-14					3.0E-07	3.0E+02		
H-3			2.0E-06	2.0E+00	1.0E-06	1.0E+03		
Ra-226	4.0E-07	4.0E+02	8.0E-07	8.0E-01	8.0E-10	8.0E-01	4.0E-07	4.0E+02
Ra-228	1.9E-06	1.9E+03	3.9E-06	3.9E+00	3.9E-09	3.9E+00	1.9E-06	1.9E+03
Sr-89	9.0E-07	9.0E+02	1.7E-06	1.7E+00	1.7E-09	1.7E+00	9.0E-07	9.0E+02
Sr-90	1.3E-06	1.3E+03	2.7E-06	2.7E+00	2.7E-09	2.7E+00	1.3E-06	1.3E+03

Detection Limits for Alpha Spectroscopy
Sample Type

Isotope	Soil - Sediment		Air Filter		Water - Milk		Vegetation - Fish	
	µCi/g	pCi/kg	µCi/filter	pCi/filter	µCi/ml	pCi/l	µCi/g	pCi/kg
Am-241	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
Pu-239	2.0E-07	2.0E+02	2.0E-07	2.0E-01	2.0E-10	2.0E-01	2.0E-07	2.0E+02
Th-228	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
Th-230	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
Th-232	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
U-234	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
U-238	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03

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